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CALIFORNIA

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CAMERA CRAFT

A Photographic Monthly

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January 1st, 1917

The year ahead we trust may be
A kindly and a prosperous one—
For you.

Our thanks for patronage bestowed
Throughout the year just past—
Are yours.

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THE BIRD CALL
By HAROLD L. HARVEY
FIFTH INTERNATIONAL SALON
CALIFORNIA CAMERA CLUB

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV JANUARY, 1917 No. 1

The California Salon

By John Paul Edwards

With Reproductions of a Few of the Pictures

The Fifth International Photographic Salon of the California Camera Club has just passed into history, leaving behind it a pleasant memory of its artistic success. This is the first Salon, photographic, that has been held in San Francisco since the great fire, in fact, the only photographic exhibition of note that has been given on the Pacific Coast in years. Held in the beautiful ball-room of the Palace Hotel, no trouble or expense was spared by the club to give their exhibition a setting of befitting dignity and quality.

The pictures, two hundred and fourteen in number, the work of eighty-seven exhibitors, were hung on parallel rows of screens against a neutral background. The effect of the exhibit as a whole was most pleasing indeed.

The catalogue de-luxe of the Salon was superb. I doubt if any photographic exhibition in the past, anywhere, has produced its equal. An imposing volume, bound in a rich vellum-like cover of deep terra cotta tone, and printed with rare typographic skill on the finest stock. The book has sixteen illustrations of representative prints in the Salon, each mounted, if you please, on a separate page of handsome warm gray art stock. This catalogue establishes a high mark of excellence worthy of the emulation of any club. All credit and praise must be given the Salon committee in charge, whose infinite labor and zeal brought this event to a successful conclusion. Anyone who has attempted the tremendous task of getting up a big pictorial event of this kind knows the volume of work it means; knows that it is a labor of love and ofttimes rather a thankless one. It should in no way detract from the credit due the Salon committee that the work of the judges was somewhat below the high standard of efficiency they

set; was, in fact, rather weird in spots. This was unquestionably due to attempting the impossible task of judging some fifteen hundred prints in one evening. This criticism of the judges is made solely that other salon committees may be warned of a pitfall to avoid.

The prints which did survive this tribunal, presented a high average of quality. Nearly all were good, very good, and some great. The most casual observer of these prints must note that the art of pictorial photography is advancing, not swiftly, but surely to a high plane. The time cannot be very far away when pictorial photography will be given serious consideration and a standing akin to that of fine arts, so called. There is no question but that the camera, in the hands of an artist worker is a most able medium for the personal expression of artistic ideas and impressions.

BUFFALO HARBOR IN WINTER
By H. W. SCHONEWOLF

The more often and the more widespread geographically that exhibitions of the high standard of this one are held, the sooner will the better art of photography claim the high standing which is its due. Nearly every print shows a greater or less quality of diffusion, holding forth hope that the days of the anchlorism of the needle-sharp print have drawn to a close. A few pictorialists still scorn the use of the many and versatile types of diffused lenses. They are simply depriving themselves of the most valuable tool which has been offered to the worker since the inception of pictorial photography.

The photographic nude seems quite frequently in evidence upon the screens. I cannot say, however, that I was much impressed by the most of them. Mere nakedness is not art. Nor among the "fats, slims and mediums" who can be induced to pose in "the altogether", do we find many who possess the beauty of line and form requisite to successful posing before the camera. To quote the late H. Snowden Ward, more or less literally,—"The great difficulty in portraying the nude is that the nakedness of the subject in most cases, proclaims itself before the beauty or artistic intention can be seen". There is at present a great vogue for the nude in photography. Is it getting anywhere; is it showing any real advancement, or is it a rather unwholesome fad? Little of the work of late years measures up to that of Mrs. Brigman of a few years ago.

A thought kept turning over in my mind as I viewed the prints, one by one, and that was regarding the aimless manner in which a great many of the subjects must have been produced; and likewise, that the prints which loomed the largest showed most forcefully that the individual maker had had an idea in his head and worked it out to a successful conclusion. Some great pictures are accidents, but they are simply the exceptions going to prove the rule. The great majority of successful pictures are the product of the man who, having an idea, carried it out consistently and well. Each picture, if you please, is a problem to be worked out. The sooner that the aspiring pictorialist forgets the cant of the pictorial vivisectionists regarding point of entrance, balance of planes, aerial perspective, Hogarth's lines of beauty, triangular composition and what not, and gets down to the idea and the working out of the problem, the sooner he will reach the top. Having these thoughts off our mind, let us step up to the first screen and proceed to "do the show".

MORNING, THE CITY BY THE GOLDEN GATE
By JAMES N. DOOLITTLE

It is not in the scope of this article to review each of the many good prints or the few of the other kind which were hung, but rather to record those which leave an impression as we pass along.

Hilda Altschul of New York has two splendid prints, the best of which, her "Sentinels", a low-toned impression of the night, is very effective. Fred Archer of Los Angeles shows two well handled landscapes, "Elysian Hills" being his best. A strong composition this, with tall trees in the fore and a finely receding distance to sustain them. Paul Lewis Anderson shows three platinums of faultless technique. The best of these is his "Portrait of Dorothy Graham", a pleasing study with unconventional posing and lighting.

Alice Boughton's two prints rather belie her high repute. Her figure arrangement, "Balloons", is interesting, but her "Spirit of the Marsh", is a gum print, too spotty and messy to be pleasing. C. E. Beeson of Pittsburg has one print, "The Rose", a head in silhouette against a window, decorative and quite

effective. E. W. Binkley's five prints, while well composed, show entirely too much diffusion to be effective. His "You Dear Old Doggy", certainly is the best of the group.

Nancy Ford Cones shows two fine genre subjects entitled "The Raggedy Man", and "Suspense". The latter, two figures seated by an old fireplace awaiting dread tidings of some nature, shows a fine depth of feeling. Rarely does a photographic print so well carry its title. The print, a Kallitype, has the charm of an old etching. Pasquales S. Culotta of Baltimore has five prints. Her portraits, Nos. 51 and 52, are splendid, but her showing is not strengthened by portraits Nos. 53 and 54. W. E. Dassonville of San Francisco has three excellent portraits in platinum, faultless in technique and showing a certain charming simplicity in posing and lighting. His Nos. 56 and 57 are particularly good.

OVER THE CITY By JOHN WALLACE GILLIES

James N. Doolittle of San Francisco has six prints, all of which show qualities of fine camera artistry. Each versatile subject shows its inception in a basic idea; the working up of a picture from the material selected therefor. "Morning: The City by the Golden Gate", is a big treatment of an everyday subject; "The Street Menders", is a fine bit of action, and "Portrait Study" gives us an unconventional portrait of a pretty girl with most interesting lighting. His other three, excellent subjects, are printed somewhat too low in tone. John Paul Edwards of Sacramento shows three, two of which look quite satisfactory, but the third rather disappointing, viewed in position on the screen. W. G. Fitz of Philadelphia exhibits three of the good things of the show. His "Danse-Javanesque", by the way, a hit in the London Salon, is a most unconventionally striking nude in the pose of the dance. "In the Canal, Cleveland", shows strong lines and tones of composition and splendid values.

A. D. Chaffee of New York shows three of the real good things of the show. These three, titled "Kayserberg, Alsace", "Courtyard, Perigeux", and "Street, Rothenberg", are bromoils of rare quality and values. From a technical standpoint they are about as good bromoil work as the author has ever

THE SENTINELS By HILDA ALTSCHUL

seen. Bromoil is a peculiar process to say the least; only one in a hundred who attempts it achieves success. His composition is most effective. Alice Choate of the same city has five prints, of which her "Riverside Drive, Twilight" and her "Avenue, Twilight", are two rather difficult subjects, splendidly handled in low tones.

Katherine Brucherzeifer's two prints are fine. Her "Heidelberg", showing an old stone bridge and towers in the foreground and Heidelberg castle in the distance against the dark background of hills, is up to the best standard of the show. The work of Margret D. M. Brown and E. M. Boult shows evidence of fine print-making ability.

John Wallace Gillies' exhibit of five pictures are all good. His best is

"Over the City", with its splendor of clouds above the ragged sky line of a great city. His No. 80, "Study in Design", was much commented upon. James N. Giridlian of Elmhurst, New York, shows four fine subjects. His No. 84, "Portrait Group", ranks high in this exhibition. It is a most natural and sympathetic portrait of two elderly people with facial expressions most kindly and likeable.

SOMEWHERE IN CALIFORNIA — By LOUIS A. GOETZ

Louis A. Goetz of San Francisco has six subjects, all showing fine print values. His "Somewhere in California", a print in rich gray tones showing a nude feminine figure in a rugged landscape setting, is easily his best. Another worker, showing fine print-making ability, is Forman Hanna of Globe, Arizona, whose "A Deserted Cabin", "Sunlight, Shadow and Clouds" and "The Storm", all show a fine rich scale of tones. His "Storm", showing the gathering of desert thunderclouds, is strong in its dramatic intensity.

Harold L. Harvey of Baltimore, is one of the "finds" of the Salon. A newcomer, we believe, in the exhibition world, he presents the most interesting group of pictures in the show. His prints, nine in number, show a rare pictorial charm that is more than pleasing in these days of interpretive photography. "The Bird Call" and "A Legend", both showing dainty, graceful, young nude figures handled in a most exquisite manner, are perhaps his best. His "Bather", "The Little Lady and the Big Clock" and "The Hindoo Mystic", and perhaps others, are but a shade behind these first. Antonette B. Hervey of New York,

THE MESSENGER By W. H. RABE

scores with her "Civic Heart of New York", although we have seen better prints of this same good subject.

Horace Hirschler of San Francisco, in his "Pushball", shows fine pictorial handling of a difficult subject. Arthur F. Kales, also of San Francisco, shows with his six prints, that he is entitled to full recognition. "Goddess of the Grove", "Daisy Chain" and "Sunshine" are his best, although his other three would perhaps have shown up equally well had they been in a higher key. Frances MacCulloch, another San Francisco worker, displays splendid print-making ability in her "Fisherman's Wharf Scene", "Storm at Carmel" and "Lagunitas Fisherman".

Among the Portland workers Robert MacGill shows an interesting "Nude" and Dr. Rupert S. Lovejoy and Susai Itow show some splendid values in their prints. Stella Klauber of New York has five that are most interesting but they

suffer from indifferent mounting. H. C. Mann of Norfolk, Virginia, shows one, an impressive bit of bleak landscape, "Silent Snow".

E. I. McPhail of New York has only one print, but that is one of the big things of the Salon. His "Power of Niagara" is impressive, a big idea most

A DANCE FOR YOU! OLD CERBERUS! By PERCY NEYMANN

capably carried out. In it the power and swirling energy of the great falls is contrasted by the tiny figure of a man at its side. It is the individual expression of like impressions and ideas that will connect photography with the fine arts. Hirvey Minns, who has succeeded in attaching a charming personality to his work, most of which require no signature, shows three of his charming characteristic high key portrait studies. Dr. Percy Neymann of San Francisco exhibits two nude studies having unusual out-of-door settings. Cornelia B. McCoy shows five interesting subjects, and Imogen Cunningham Partridge, in her "Designer and Design", gives us a most pleasing and unconventional portrait study. The other, "The Bather", is not up to her usual standard.

E. L. Crandell of Washington has a fine bit of composition in his "A Study-Japanesque". Herbert H. Piper of San Francisco shows three that are very effective, "Moonlit Corridor", "In a Safe Haven" and "The Morning Toilet". E. M. Pratt of Sacramento has one print so well done that one would like to see more of his work. In "On the Trail" he pictures, in rich low tones, a group of passing horsemen with the rising dust creating a fine pictorial atmosphere.

The work of W. H. Rabe is up to the highest standard of the Salon. Seeing

WIND BLOWN
By EDWARD DE WITT TAYLOR

it we readily understand why Mr. Rabe has become such a consistent medal winner. His prints have a pictorial interest combined with a certain pictorial quality that bespeaks the artist in their maker. All five of his subjects are good, very good, but were I to pick a favorite, the choice would be his "Messenger", a single sea gull over a wide expanse of water, with the light of the setting sun gilding, here and there, the swell of the sea. All his work showed fine rich tones in the print. W. M. Sargent, also of San Francisco, in his "A Portrait of Miss S.", has one of the best, if not the best portrait in the Salon. It is most refreshingly natural and most charming in pose and expression. Jane Reece's "Harmonious Moods", an interesting study of a pianist and his instrument, is excellent, but her other print, "Alone in a Storm", rather lacks motif.

H. W. Schonewolf of Buffalo exhibits two fine carbons which stand out clearly as among those really worth while. "Buffalo Harbor in Winter" pictures most convincingly the pulsing activity of that busy waterfront. A really cold quality of winter is shown in this print. His "Sail Boats at Dock", with fine values, shows a group of boats at dock with an expanse of water and effective reflections in the foreground. Karl Struss' group of three prints shows the genius of the man but do not fairly represent this sterling pictorialist. "The Sun Dance" and No. 198, "Landscape", are the best of the group.

Edward De Witt Taylor of San Francisco exhibits seven of unusually fine print quality and strong pictorial interest. He shows great ability and sureness in his handling of the two rather difficult processes, Kallitype and Germ. His "Portrait", No. 203, is dignified and pleasing. His decorative landscape, "Wind Blown", a tree study, is a dramatic theme, most convincingly carried out. "After the Storm" is also worthy of special note. Floyd Vail's "Landscape Artist" is very good. There is a refreshing quality about this picture of an artist at his easel with an atmosphere of luminous mist. Ernest Williams of Los Angeles shows fine quality and interest in his two subjects, "The Launching" and "Glimmering Surf Lines". W. H. Zerbe's print, "The Solo Dance", depicts one of the most difficult subjects possible to find for the camera: a couple dancing in the circular glare of a spotlight. The success achieved testifies to his technical skill. Many other interesting pictures that display marked technical skill and artistic talent were hung; but unfortunately, the limited scope of a review does not permit all the good things to be mentioned.

Exhibitions of the high type of this California Salon cannot fail of lasting influence on the course of pictorial photography. As this one was a success let us hope that the club will lay plans for other and possibly annual like events, to be built on the best ideas of the one just passed.

Simplification

There is a passage in that entertaining and instructive little volume, Hunt's "Talks About Art," that has always seemed to me especially deserving of being fixed in the memory for use in moments of doubt, viz.: "When values are so nearly alike that it is difficult to distinguish them, make them alike, and thus learn to simplify your masses."—Antony Guest.

KAYSERBERG, ALSACE
By A. D. CHAFFEE

The Amateur's Everlasting Question

By W. Rob. Whyte

With Illustrations by the Author

The amateur photographer's pet question is: "What is the best developer to use for all-round work?" The reply he usually receives from the experienced photographer is that any correctly compounded developer will have exactly the same result, although it may work at a different speed from some other developer; practically, that, given something like a correct exposure, all developers work alike if allowed a sufficient length of time. This is an answer very disappointing to the amateur, who imagines that the secret of photographic success lies principally in some secret process or admixture of developing ingredients. "Tell me what developer you use to obtain such splendid results!" That is the amateur's most common demand upon the man of experience. And the answer of the man of experience does not enlighten the amateur, because the amateur soon finds out that, in his hands, it is not true.

The first question to put to the amateur is: "What sort of result do you want?" "Do you want a negative that will print on any sort of paper; that will bear enlargement; that will bear to be printed on gaslight paper by daylight?" If you want a negative to fulfil the above conditions, our experience leads us to say that the best developer is pyro-soda.

A SANTA ROSA HOTEL INTERIOR

Now, it is quite unnecessary for us to say that the formulæ for pyro-soda developers vary very greatly. Therefore we will give you one which we have found to give perfect results with all sorts of exposures on all sorts of subjects with all sorts of plates, and which invariably produces a negative such as described in the above somewhat lengthy question. Remember, that is the pyro-soda developer; and, to avoid confusion, a description of the preliminary preparation and the formulæ will follow toward the end of this article.

Then, supposing you require a developer giving a very different printing quality; say, one which will give you a negative suitable for rapid printing on

WHERE OLD OCEAN LOVES TO PLAY

gaslight paper by gas or lamplight. For this purpose you want a somewhat blue negative, therefore with no very dense highlights, but with full gradation and contrast. This we will call the M. Q. developer, although it may not really contain any metol.

To compare the results of these two developers: The pyro-soda gives a negative of the fullest possible gradation, but of a considerably non-actinic quality. That is to say, it is somewhat brown in tone, although the color may not be perceptible to the eye. The M. Q. gives a negative of full gradation, if the exposure has been ample, but the result is somewhat blue, and therefore enables prints to be made from it by a very weak light. Then again, the pyro-soda developer is only suitable, under ordinary circumstances, for negative making, while the M. Q. is equally suitable for contact prints on gaslight paper, for enlargements, and for developing papers which require daylight for printing. Our marine negatives were developed with pyro-soda, the others with M. Q.

The comparative infrequency with which the average amateur uses his developer is a very common source of failure. We will try to get over that difficulty by describing a method of mixing and keeping stock solutions so as to avoid waste, both of chemicals from their remaining unmixed in working form for a great length of time, and of paper from trying to use an old and

A GENTLY BREAKING KIND OF WAVE

spoiled developer for the sake of economy. We will start with the pyro-soda. This requires but two one-pint bottles, labeled A and B, containing the two following:

A:	Water	16 ounces
	Oxalic acid	10 grains
	Pyro	1 ounce
B:	Water	16 ounces
	Dry carbonate of soda	2 ounces
	Dry sulphite of soda	1 ounce

To use, take six ounces of water in which a few grains of dry sulphite of soda have been dissolved, and add one ounce A solution and three-fourths of an

WHERE WAVES BREAK AMID THE ROCKS

ounce of B solution. For portrait work or absolutely accurate exposure, develop for three minutes at sixty-five degrees Fahrenheit. For greater contrast, according to the nature of the subject, develop longer as dictated by taste. In cases of over-exposure, add a few drops of bromide of potash, or cut down the quantity of B and develop still longer.

THE PET PIGEON POSES FOR HIS PICTURE

Now for the M. Q. This requires three one-pint bottles, which we will label, C, D and E, with contents as follows:

C: Water .....16 ounces
Dry sulphite of soda.....¾ ounce
Metol .....¼ ounce

or, if preferred, the metol can be replaced with edinol, reducing the amount of sulphite to one-half ounce.

D: Water .....16 ounces
Dry sulphite of soda.....¾ ounce
Hydroquinone .....¼ ounce
E: Water .....16 ounces
Carbonate of potash..... 2 ounces

To use for negatives take one ounce of C, two ounces of D and one ounce of E, adding eight drops of a ten per cent bromide of potash solution. Use at sixty-five degrees Fahrenheit and develop until fog begins to show on film or the image begins to show on reverse side of plate. For prints, take one ounce of C, two ounces of D and two ounces of E, adding about five drops of a ten per cent solution of bromide of potash. The bromide will have to be varied according to the chemical nature of the water used, the amount increased or diminished as experience dictates. Use enough to keep the whites clear but not enough to cause an olive tone in the blacks.

This last formula is equally suitable for gaslight prints, enlargements on bromide paper, and for daylight developing paper. Many workers use a dilute developer for enlargements and, if your taste goes in the direction of a soft, gray enlargement, it is of course better; but, for an enlargement which looks like a contact print, the above formula at full strength is preferable.

Note 1: The pyro-soda developer can be used but once; the M. Q. until it ceases to work at a reasonable speed.

Note 2: Keep all bottles well corked or stoppered.

Note 3: Whenever a bottle becomes empty, clean it out most thoroughly.

Note 4: Use brown bottles only.

If you are an amateur and find that by following,—or thinking you have followed, these instructions, you still meet with failure of the result required, we will be pleased to assist you if you will address us, care of CAMERA CRAFT, and enclosing the result which is not satisfactory.

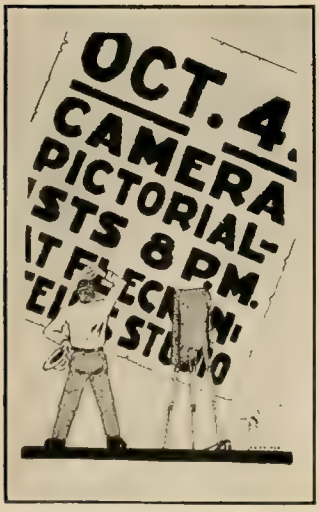
Club Notices and Advertising Cards

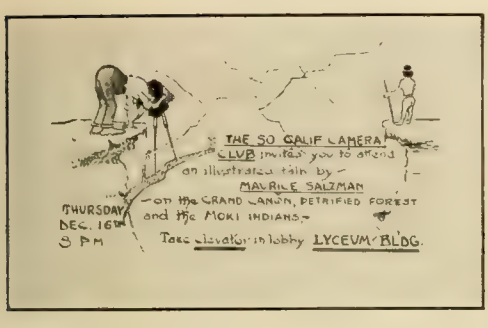
By Fred R. Archer

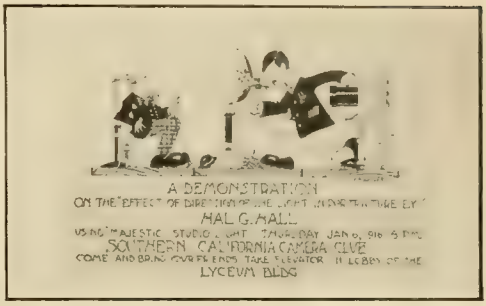
With Illustrations by the Author

As one of the publicity staff of the Southern California Camera Club I have been called upon to do my part in getting members to the meetings, and I believe that the form of our postcard notices has contributed not a little to our success. Therefore this article on club notices and advertising cards.

Every camera club finds it is somewhat of a task to secure a good attend-





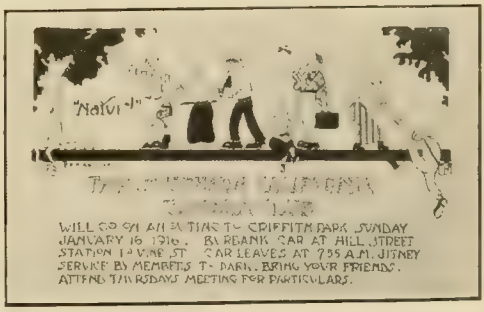


ance at the meetings. "Oh, yes, I know." We used to send out notice cards which were read at a glance and tossed aside: result, small attendance. The remedy suggests itself, namely, to get out a card that will not be tossed aside and forgotten; and this can be done at no more expense than the old typed ones involved. There is required, of course, a little more work upon the part of a few more members, but only a little, here and there. A drawing is first made, the proportions of a postcard but larger in order that the reduction may minimize small imperfections. "Ah! there's the rub", you say, "we cannot draw". But in every small gathering of people there is someone who can draw or letter well enough to make the card,—look him up.

The drawing made, it is handed to the member volunteering to make the copy. This done the negative is passed on to the one or two who have volunteered to make the prints and the cards are run off and passed to the secretary to address and mail. This system of distributing the work among volunteers has proven very satisfactory with us.

The drawing should be of such a character that it will catch the eye and the lettering should, if possible, be large and bold. For a club notice I prefer black and white effects, as they are easy to copy and make snappy, striking cards. But supposing there is no pen and ink artist in the club; take a suitable photograph, a glossy print, and one not too small, space off a portion to accommodate the lettering, do this last on a thin card and paste on the photograph, copy, and there you are. If no one in the club can letter the card it costs but little to get a professional card writer to do it. So there is no excuse for not having attractive cards for announcements. Obviously it is more appropriate for a camera club to send out their notices on a photographic postcard, and so doing permits of "local color".

THANKSGIVING GREETINGS
THE SOUTHERN CALIFORNIA CAMERA CLUB WISHES TO
ANNOUNCE THE NEXT REGULAR MEETING FOR FRIDAY
NOV 26 AT 8P M (OWING TO THANKSGIVING)
ALL WHO HAVE SLIDES OF THE OUTING AT SAW
PIT CANON ARE REQUESTED TO BRING THEM.
T.K.ROLAND PRES
HAL G.HALL SECY.


WILL GO BY AUTO TO GRIFFITH PARK SUNDAY
JANUARY 16 1916. BY REAR CAR AT HILL STREET
STATION 1ST VINE ST CAR LEAVES AT 7.55 A.M. JITNEY
SERVICE BY MEMBERS TO PARK. BRING YOUR FRIENDS.
ATTEND THURSDAYS MEETING FOR PARTICULARS.

Incidentally, there are possibilities in this method for the professional photographer in the way of advertising. One of the accompanying cards, that of Mr. Hall, is from a glossy print, lettered on with white paint and then copied. The process is very simple and such cards are more likely to be retained

A PHOTOGRAPHIC ANNOUNCEMENT CARD

in the possession of the recipient than is a common printed one. The original negative for my own card, reproduced herewith, was made by photographing against the light with a white sheet interposed to produce the silhouette effect, an enlargement being made upon buff paper in order to get a tone over the background in the copy. This enlargement was lettered as shown, the brush strokes in the background put on with white, and then copied.

In making such cards a glossy print is not absolutely essential, but it retains the original brilliancy in the copy. The novice may find it a little difficult to letter it in water color, its surface seeming to be "greasy" or repel-

A COUPLE OF PHOTOGRAPHIC BUSINESS CARDS

lant to the paint. A little finely powdered pumice rubbed over the surface of the print with a soft cloth will not destroy the gloss but will permit the paint to stick. A good white can be made by mixing a little flake white with water, to which a drop or two of mucilage has been added to make it stick.

The cards for the "Evening of Cartoons" were printed directly from the original negative, no copying being necessary. The background, from a point above the head downward, and around the back of the head and body, was locally reduced until the image was entirely removed. A piece of onion skin paper, carrying the lettering in black ink, was put face down over the emulsion side of the negative and held in place by the lantern slide binding which acted as a matt to produce the white border. The unevenness of the lettering on this particular card is the result of there being no reduction as in making a copy with the attending opportunity of drawing the letters large in size.

A PHOTOGRAPHIC POSTER

Many excellent posters have been recently made photographically and the field for this work is rapidly growing. The exhibition poster here shown was made as follows: The original 3¼x4¼ negative was enlarged on glossy paper and trimmed to 6x8; the lettering was done on a 3x3¾ card and pasted onto the print, the whole being copied on a 5x7 plate. The finished posters were 10x12 sepia enlargements mounted on 12x15 brown cards. Isn't it simple? Why not try it?

In copying I find it far better to use a double coated plate than a single coated one. To secure the fully exposed and fully developed negative necessary to make a good copy, one is liable to lose the smaller letters when a single coated plate is employed, and the danger is not as great with the double coated one. Furthermore, there is less likelihood of the highlights becoming degraded by reason of the full exposure. A very good plan to follow in copying is to put the picture under a glass in a printing frame. This holds the copy flat, preventing wrinkles and consequent reflections. I advise making the exposure

by flashlight, keeping the flash well outside the angle of reflection of the glass in the frame; that is, a little further outside the edge of the printing frame than the lens is inside, and far enough behind the camera to insure no lens reflection. When copying one-half the diameter of the original, a thimbleful of flash powder will be ample, using the f-16 stop.

"Look Pleasant, Please"

I visited the sharp who makes artistic photographs and said, "I wish you'd drop all other fakes, and make a picture of my head." He pushed some screens to let in light, and I was to a chair assigned, a bughouse palace at my right, a canvas thundercloud behind. He screwed my dome of thought awry, and gave my diaphragm a squeeze, and then I heard him briskly cry, "All ready now—look pleasant, please!" My face had worn a look of gloom, but when I heard his cheery call, I sprung a smile that filled the room and dimmed the gaslights in the hall. And when the photograph was made, that smile was placed on record there; the years may pass, it will not fade, and folks who see it will declare, "He must have been a pleasant jay! He smiled profusely and with vim; the world would be less bleak and gray if there were more glad guys like him!" I keep the picture on the wall, where I can view it day by day, and when some evil thing befalls, it helps me drive the blues away. "I looked as glad as that one time," I mutter, as I toil away; "and it would be a beastly crime to look less happy any day." A scowling face will gain no friends, nor banish woe, nor heal disease; so, when a cloud of grief descends, say to yourself: "Look pleasant, please!"—Walt Mason in *The Toronto Star.*

The highest art of all, then, is that which consists in the expression of one grand idea with such force that every other thing is forgotten in its contemplation. This is the superlative of art, and this is the sublime.—John C. Van Dyke.

A HIGH ROLLER AT LAND'S END By W. ROB. WHYTE

This May Help

By James N. Doolittle

With an Illustration by the Author

Us luckless individuals whose portrait and figure studies have failed in their appeal to the "Jury of Selection" of this or that salon may find, through introspection, a possible explanation and not unlikely food for thought, when its antiquity and obsolete character is considered, in the following excerpt from Strauss' translation of a painter's advice in Dr. Halleur's "Art of Photography", published in 1853. It is, of course, within the range of possibility that our "Juries of Selection" are sometimes influenced by equally classic counsel extended by painters to the photographers of their time; but, as we have suggested, introspection should disclose which be the case.

"As regards the proper attitude of the person sitting for the portrait, this must of course be left in a measure to the individual judgment and taste of the artist. However, a few hints on this subject may not prove unwelcome.

"The posture of the person sitting for the portrait should be easy and unconstrained; the feet and hands neither projecting too much, nor drawn too far back; the eyes should be directed a little sideways above the camera, and fixed upon some object there, but never upon the apparatus, since this would tend to impart to the face a dolorous, dissatisfied look. Stout persons should be placed at a certain distance from the apparatus turning towards it a little sideways; whilst people of slender make should be made to sit full in front, and nearer the apparatus. Long arms and legs require

ONE THAT HAS BEEN REJECTED

drawing back a little. The hands should rest easy on the lap, neither too high nor too low; or one hand may be placed on the table, the other holding a book or some other object. A thick hand should show the thumb in the foreground, with the fingers bent a little inward; a long hand had better show the back; a hand of handsome shape, neither too long nor too short, should show full two-thirds, with the fingers easily and gracefully hanging down. A slight lateral inclination of the body forward will generally produce a good effect. In the case of ladies, a shawl or boa, or similar article of dress, thrown lightly over the shoulders, and arranged in a manner to hide some defect, and to properly distribute light and shadow, will mostly tend to produce a pleasant impression.

"Of a full round face, with large mouth, small eyes, and small nose, the portrait should be taken in half profile, so as to show one side of the face in full, with very little of the other side.

"A moderately full face, with aquiline nose, and handsome mouth and eyes, should be taken in three-fourth profile; a countenance with strongly marked features full in front.

"The selection of a proper background for the picture is also a matter of some importance; in some cases, a landscape will give a most pleasing background, in others a simple wall will answer as well, or even better; the decision here must be left to the individual judgment and taste of the artist.

"If two persons are to be portrayed in the same picture, the one should be made to lean lightly on the chair of the other, and the faces of both should be partly turned to each other, as in conversation. Or they may be placed at a table seated opposite each other, the one with the right, the other with the left arm laid on the table, and the bodies of both gently inclined forward and towards each other, as in conversation."

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

HARD DRYING PUTTY: Take equal parts of japan and rubbing varnish and mix with dry white lead until of the proper consistency, using a small mallet to break up the lumps. When not in use keep under water in order to prevent drying. This is very useful about a studio and a supply should always be kept on hand. The few ingredients can be obtained at any paint store or hardware store carrying painters' supplies.—J. J. K., Louisiana.

A FEW STUDIO HINTS: Ordinary gold bronze, made from bisulphate of tin, mixed up with copal varnish, makes a fine gold bronze for furniture. A solution, made by dissolving borax in water, mixed with linseed oil, makes a cheap paint that can be given any color desired by adding the proper pig-

ment. A few drops of oil of lavender in a saucer of water will make a room distasteful to the flies. A little turpentine on a cloth is excellent for cleaning dirty sinks. A little vaseline around the cork will prevent its sticking in the mucilage bottle. To remove a screw top from a can, simply wrap a piece of sandpaper around it and turn.—C. V. B., New York.

WAX FINISH FOR BROMIDES: Mix, with gentle heat, taking care to avoid fire, the following: Pure white wax, three ounces; dammar varnish, ten drams, spirits of turpentine, three ounces. Rub a little over the surface of the print and then polish with a rag or brush applied briskly.—E. R. T., New York.

SNOWSTORM EFFECTS: The snowstorm effects that were so popular with professional photographers some twenty-five years ago were produced by dipping a small, stiff brush, generally an old tooth brush, in a thin solution of india ink and water, and then shoving this across a thin edge in such a way that the ink was spattered on the negative at the proper angle to give the falling snow effect. A little practice, using the back of an old mount, will generally give one the knack of spattering the ink on in the right manner. - D. F. G., Ohio.

TEST FOR HYPO: Add two grains of permanganate of potassium and twenty grains of carbonate of potash to forty ounces of distilled water, forming a rose-colored solution. Take a small quantity of this in a graduate and allow a little of the dripping from the partially drained plate to fall therein. If the rose color maintains there is no hypo in the water dripping from the plate and it may be considered free from hypo. If the solution turns slightly green or olive color, further washing is indicated.—A. S. D., Florida.

CLEANING STUDIO FURNITURE: Shave half a bar of white soap into a quart of boiling water; and, when thoroughly dissolved, add six tablespoonfuls of kerosene. This, mixed with a gallon of warm water, makes an excellent cleanser and renovator for studio furniture and woodwork. It should be applied warm with a soft cloth, followed by polishing with a dry soft cloth. Warm the solution each time before use.—D. F. G., New Hampshire.

WRITING ON CELLULOID: An ink for writing on celluloid is sometimes wanted about the studio. It enables one to write titles on thin sheets of this material and use them to title negatives, and for various other purposes. Mix forty-eight grains of tannic acid with one ounce of acetone, then mix forty-eight grains of ferric chloride with one ounce of acetone, and then combine the two mixtures. This makes an ink that writes nicely on any celluloid surface.—B. N. M., Kansas.

CORRECTING UNDER-EXPOSURE: Recently I made a negative of an out-door group of lodge officials; and, through delay in getting them together and a diminution of the light by clouds, the result was a sadly under-exposed negative. Remembering directions I had seen published months ago I tried the following experiment, one calculated to overcome the tendency of under-exposed negatives to loose detail in fixing. After developing the plate I washed

it very thoroughly to remove every trace of the developer and then gave it a short soak in a weak formaldehyde bath to harden the film. I then, without fixing, dried the plate and inserted it in my enlarging camera and made a positive of the same size on a slow plate, developing this last for such contrast as I wanted. From this positive a new negative was made that beyond question was much superior to the original and with much more detail than the original showed after being fixed. Had the negative been a small one the positive would have been made by contact in a printing frame, but it is hard to get a good contact, working in that way with plates larger than 5x7.—W. E. R., Tennessee.

REMOVING RETOUCHING: Rubbing over with a tuft of cotton dipped in benzole will generally remove the retouching together with the medium used in applying it. If this fails it indicates a medium not dissolved by the benzole and alcohol can be tried with every hope of success.—F. G. H., New Jersey.

REMOVING METALLIC STAINS: Blue metallic stains on plates are the result of using either stale plates or decomposed developer. Make a solution by dissolving four or five grains of potassium ferricyanide in each ounce of water required. Soak the negative in this for about two minutes, then rinse well in an ordinary fixing bath, wash well and dry as usual. The stains will have taken their departure.—M. N. B., Vermont.

REPAIRING PLASTERED WALLS: I recently moved into a studio that was remarkable for the number of nail and screw holes that defaced the plastering. With some plaster of Paris and water I made a stiff paste and filled them all up in a very short space of time. Where nails and screws were really wanted I inserted them after the hole had been well filled and before the plaster had a chance to set. Where the holes were small they were purposely enlarged before being filled in order that the plaster could be forced in the full depth of the hole.—H. G. F., Delaware.

MOUNTING PRINTS ON GLASS: A cement that will stick prints to glass or like smooth surfaces is made as follows: Take one ounce of gelatine and soak in cold water for two hours, then drain off the water and put in wide-mouthed bottle, adding from one-half to one ounce of glycerine, according to whether the gelatine is a hard or soft kind, finally adding ten ounces of alcohol. Set the bottle in hot water and shake from time to time until dissolved. This should be warmed each time before used and not allowed to get cold until the work in hand is finished.—T. G. B., New York.

POLISH FOR MAHOGANY: For cameras and other like mahogany furnishings about a studio the following polish will be found excellent:

Raw linseed oil	6 ounces
White wine vinegar	3 ounces
Methylated alcohol	3 ounces
Chloride of antimony	½ ounce

Mix the oil and vinegar a very little at a time, shaking the bottle well at each addition, then add the alcohol and chloride, mixing thoroughly. Shake well before using, apply and rub in well with a soft rag, giving a final polish by rubbing well with a clean, soft cloth.—C. D. E., Washington.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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The Recent California Salon

The Fifth International Photographic Salon under the auspices of the California Camera Club was a success and an achievement. The pictures were not only of the highest class but they clearly mirrored the advancement along pictorial lines so evident in the best photographic work of today. There was, perhaps, a tendency shown to use too freely the capabilities of the soft focus lenses, or rather, to employ those capabilities over too wide a field. The fairly uniform size of the pictures shown is an indication of an appreciation of exhibition requirements and the absence of frames was a decided advantage over the usual practice of allowing exhibitors to give their fancy too much rein in that direction. The holding of the exhibition in an easily accessible location proved itself the only proper way, the attendance being particularly gratifying as compared to that secured in former years when a visit necessitated a trip to the old Art Institute.

The committee having the Salon in charge deserves a large measure of praise for the results achieved. True, a few mistakes were made, as can only be expected when it is remembered that not a few years have elapsed since a Salon has been held by the club. Such few causes of regret as did arise can serve only as warnings to be heeded to the greater efficiencies of future efforts. The good grace with which all criticism, both merited and otherwise, has been received, speaks highly for the tolerance and fairmindedness of those upon whose heads it has been poured. No doubt the full measure of praise which they have also received may make this last less difficult, but all credit is still their due. Exhibitions such as this notable one just closed cannot do other than have a most beneficial effect, both upon those who produce pictorial work with their cameras, but upon those who too often lack an appreciation of the possibilities of the camera in the hands of pictorialists. Exhibitions have an educational value that makes them almost a necessity if photography is to come into even a small share of its own. May the California Camera Club give us another Salon a year hence and may its success outrival even that of the one just closed.

California Workers and the London Salon

A year ago, in looking over the catalogue of the London Salon, we took occasion to draw comparisons based on the number of local artists represented and the number of their pictures accepted. Even more gratifying are the new figures, showing as they do that, despite the deplorable conditions existing abroad, the Salon brought out a still stronger representation from the workers on this side of the Atlantic. At the 1915 show, twenty-eight exhibitors from the United States were credited with seventy-three prints, while at the last

nearly double that number, fifty-two, have one hundred and eight pictures to their credit. In 1915 San Francisco claimed the largest representation of any city in the world except London, but this time no such claim can be made, the same number of exhibitors showing only eleven prints. California workers, however, have the satisfaction, not a small one, of leading the country in the number of pictures, New York being a close second with the same number of exhibitors credited with one less print. Our previously expressed hope that more Pacific Coast workers would submit their pictures to the Salon, we are happy to say, seems to have been fulfilled, judging by the number accepted. This we trust may prove a stimulus to an even greater number as the date for sending to the next London Salon draws near.

An Opportunity for Local Pictorialists

Sadakichi Hartmann (Sidney Allen), the well known photographic critic, is now located in San Francisco, and, being himself interested in the pictorial possibilities presented by our favorable location, will undertake to give parties of the pictorially inclined the benefit of his wide knowledge of art and photography through camera excursions about in search of the picturesque. A number of Camera Club members and others who have availed themselves of this opportunity have secured results that prove the value of his help and instruction. Parties are limited to ten and two dollars and a half per person, each excursion, we understand, is the modest fee charged. Information can be obtained and arrangements made by telephoning Mr. Hartmann's manager, Franklin 1685.

Our Deepest Sympathy Extended

Adelade Hanscom Leeson, well known as a pictorial photographer, most particularly through her wonderful photographic illustrations of the Scribner edition of "The Rubaiyat of Omar Khayyam," and like work, has received a telegram from France informing her of her husband's death in the trenches. A large number of our readers and particularly those so fortunate as to have come within the sphere of her charming personality, will join us in extending our most heartfelt sympathy to one who has done so much to substantiate the high artistic possibilities of photography.

Mr. Willis Goes To Chicago

H. P. Willis, who has made himself so popular with the trade here on the Pacific Coast as representative of the Folmer & Schwing and the Century Camera Company Divisions during the past seven years, we understand has been advanced to the position of Chicago representative. His host of friends here wish him all the sucess that he assuredly will earn for himself. While his business interest will of course center in his new location we feel quite sure that his love for California will ultimately give him back to us should opportunity present.

You may be possessed of the idea that the object of a painting is to see how closely the artist can imitate nature—many people have such an idea. I beg of you to discard that likewise. Imitation never made anything worth looking at the second time.—JOHN C. VAN DYKE.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Pyro-Amidol

T. H. Greenall, writing in *Photography and Focus*, says: Although the peculiar characteristics of amidol and pyro have been often stated, it will not be out of place if I indicate how, by a few experiments, each photographer may study these for himself. It is not necessary to use plates for the purpose. A few camera exposures may be made on bromide paper, which is usually about one-third the speed of a special extra rapid plate; but it is more instructive to proceed as follows:

The least exposure, which, on development with amidol (without bromide), will yield a tint on the bromide paper, is found. This will be about one second at ten feet from a candle flame. A series of exposures can then be given on the bromide paper, ranging from one second up to one minute, and the paper cut up so as to provide a number of strips each identical as regards exposure. Some of these strips can be developed in amidol for various times, and others in any standard pyro developer with and without bromide, and in varying degrees of dilution and for various times. After fixation and washing the strips are examined by transmitted light.

I ought to say that each strip must have an unexposed portion, to show fog if any is present. If fog arises, this is most probably due to the use of an unsafe dark room light, or to too close an exposure to the light, for in working with a vigorous developer componded for negative work it is not safe to work the bromide paper by the same strength of light as may be used in bromide enlarging. The bromide paper must be treated as carefully as a plate.

An examination of the strips shows that strong pyro, even without bromide, gives great contrast. The lighter tones are very slow in appearing. It is the developer to use if contrast is wanted. Dilute pyro acts softly, but is very slow, and hence is liable to end in fog and stain. On the other hand, amidol, even in dilute solutions (one grain to the ounce), acts with fair rapidity, and develops up the lightest tones almost simultaneously with the deeper, so that at whatever period we stop development the lightest tones are represented, and it requires very little accelerator.

From this it might be thought that amidol would have been considered by everybody as the developer *par excellence* for snapshots and under-exposures generally. But there are drawbacks to the general use of amidol. Its very vigor makes it unsuitable for beginners, as it is difficult with it to recognize over and under-exposure, whilst the blue-black color of the negatives makes it unpopular with p. o. p. printers. Since, however, p. o. p. is now largely replaced by gaslight paper, that is a consideration which has lost its force.

It occurred to the writer, however, that perhaps a combination of pyro and amidol would yield a developer which, whilst possessing the softness in working of amidol, would yield a negative in character like that of pyro. At first the experiments were unsuccessful. If amidol were present in anything like equal proportion with the pyro, the two did not work together in harness—the amidol ran away with the pyro, so to speak, whilst, if the alkali were reduced, the pyro stopped dead. This was seen by the color of the deposited silver.

It was then decided that the thing to do was to reduce the proportion of amidol greatly, and at the same time to select a pyro developer which worked with a minimum of alkali. Ultimately it was found that one-eighth or one-sixteenth of a grain, or less, of amidol to one and a half grains of pyro in an ounce of developer produce a mixture which acts almost as softly, and quite as quickly, as amidol alone, yet with some of the restraint of pyro, and yields a negative very similar in color to that of a pyro-soda developed negative. Further, and this is of great importance, it was found that

by starting development in pyro alone and adding the amidol one minute afterwards, the result was the same as if the amidol had been added at the start.

We simply flood the plate with the pyro developer and cover the dish for, say, forty-five seconds, then glance at the plate as it lies in the dish, and if there is a decided image, especially if it is a flat subject, development may be continued in the pyro, otherwise the amidol is added. In neither case is there any necessity to look at the plate again until development is complete. For a contrasty subject we use the pyro-amidol.

I have already stated that the pyro developer must be one requiring a minimum of alkali. The one I selected as the best is made with neutral sulphite. The following is the formula:

A: Water, cold ..... 4 ounces
Diluted sulphuric acid, one part in ten by volume ..... 80 minims
Sodium sulphite, crystals .....260 grains
Pyro ..... 24 grains

The water and the dilute sulphuric acid are mixed together in a four-ounce medicine bottle, and when properly mixed the sulphite is added in solid form. The bottle is corked and the sulphite allowed to dissolve, when the pyro is added. The sulphite must not be in separate solution before it is mixed with the sulphuric acid. The pyro solution made in this way has very good keeping qualities. Thirty grains of meta bisulphite may be used instead of the sulphuric acid, but there is no advantage.

B: Sodium carbonate, crystals .....192 grains
Water to make..... 4 ounces

If sodium carbonate is bought by the ounce it may be reckoned that one ounce will make nine ounces of solution.

The working pyro developer consists of two drams of A, two drams of B, and four drams of water. In time development it is important to be strictly accurate in the composition of the stock solutions and of the mixed developer. The time of development, of course, varies for different brands of plates, and for different temperatures. Tables have been published by Mr. Watkins which are a good guide, but each worker had better make a standard time for himself, using the meter for his exposures, and keeping his developer fairly constant in temperature.

The formula of the amidol developer is as follows:

A: Sodium sulphite crystals .....120 grains
Water to make..... 8 ounces
Amidol ..... 16 grains
Crystallized oxalic acid ..... 40 grains

These are dissolved in the order given. After adding the oxalic acid the solution is shaken until the crystals of acid dissolve and a little longer—an occasional shake is sufficient—as a precipitate forms, and the mixture should not be left at rest while the precipitate forms. This should be labelled "Shake the bottle before using." I have not found it possible to make an amidol solution which will keep without having this precipitate. The precipitate is active, and care must be taken always to get a proper proportion of precipitate when the solution is measured out. The mixture keeps indefinitely.

The solution B is either the solution B used for pyro, as given above, or, as an alternative, a solution of sodium sulphite may be used.

The working mixture consists of four drams of solution A, equivalent to one grain of amidol, together with fifteen to twenty grains of sulphite, or eight to ten grains of sodium carbonate, with water to make one ounce of developer. With sulphite the working mixture will keep clear a day or two, and is an excellent developer for bromide work. With carbonate it soon begins to discolor. Increased alkali makes the developer too rapid.

The pyro-amidol formula is as follows: To each ounce of pyro developer prepared as above described, one dram of working amidol developer is added, equivalent to one-eighth of a grain of amidol. If this works too softly half a dram only may be used. Of course, if only one plate is to be developed it is not necessary to prepare an ounce of the working amidol developer, but the precipitate should be dissolved in the required amount of sulphite, or carbonate, whatever amount of stock amidol mixture is taken. Thirty minims of stock amidol and eight to ten drops of solution B, stirred together in the measure, equal one-eighth of a grain of amidol.

The required amount of amidol is placed

in a measure ready to hand, together with a separate dish, as if the slightest trace of amidol got into the pyro dish it is obvious that the rapid appearance of the image would mislead the operator. The plate is then flooded with pyro, and in forty-five seconds, depending on the make of plate, one will be able to tell whether the plate has been over or under-exposed. In the former case development may be continued in the pyro. In the latter the developer is poured into the amidol, and, after mixing it in the usual way, development is continued in the amidol dish. Of course, the hand-camera worker, especially if he uses f-8 or f-11, will practically require the amidol for his snapshots always. On the other hand, pyro alone will undoubtedly be preferred by the man who uses his camera on a stand and gives time exposures and is accustomed to give "a little extra for the plate".

When a fully active developer, without bromide, designed to develop the limit of fog, is employed, it is impossible to get the edges where the plate is protected by the rebate quite clear from veil, especially if the plate were not backed. Veiling of the edges is probably due to the spread of light in the film, and will always be noticed where the sky comes up to the edge of the picture, unless, of course, the negative was given the minimum exposure for the sky only. The more excessive the exposure, the greater will be the veil. The writer has often seen strong development of the unexposed margins of a plate in tank development whilst the rest of the plate did not suffer from over-exposure. This might be due either to contact of the plate with the wood of the dark slide, or with the sheaths in the tank. It is no detriment. Veil all over the plate, due to an unsafe dark-room light, is another thing, but there is no excuse for that.

Those who prefer to use a little bromide in the developer will get brighter negatives, but it does not follow that they will be any better. It is interesting to note, however, that if a trace of bromide is used with the pyro, the addition of the amidol gives a negative exactly similar to that which would have been obtained if no bromide had been used, and development conducted in the pyro alone. With bromide the time of appearance of the image in the pyro is about doubled.

A comparison of pyro-amidol was made with pyro-metol, and it was seen that the two had their utility in quite different directions. Pyro metol; at least as usually compounded, appears to be designed to produce negatives of what is called "printing quality". Pyro-amidol produces soft, delicate negatives, highly suitable for enlarging or contact printing on gaslight paper.

With Barnet Self-screen, Imperial S. S. Ortho. and Royal Standard Extra Rapid plates the time of development at sixty-five degrees Fahrenheit is about five minutes, whilst at sixty degrees it is six minutes. If, however, this gives too strong a negative, the better plan is to reduce the pyro in the stock solution A to eighteen to twenty grains.

Permanence In Photography

Apropos of your interesting article on Permanence in Photography, a few facts, from an experience of twelve years, concerning the comparative permanence of platinum and bromide prints may be of interest.

You state that bromide prints are as permanent as platinum. That is my own opinion. From fourteen to twelve years ago I made a number of platinum prints. Some are as good today as when I made them; but quite a number have faded or gone wrong. I have hardly a bromide print made before 1904 which has kept well. In that year I adopted a new system of washing prints (which I read of in this journal); and since that date my bromide prints, with very few exceptions indeed, have kept perfectly. The reason why so many bromide (including gaslight) prints go wrong is that so few of them are perfectly washed. I gave up platinum printing because on the average platinum prints have not so good an appearance as bromide prints. Given a perfect negative and a perfect day for printing it, nothing can beat a platinum print. But as the average of bromide prints are better, there is every reason for using bromides if they are as permanent as platinum. When platinum prints go wrong, it is because they are imperfectly washed; and bromide prints go wrong only for the same reason. It is easier to wash a platinum print perfectly than a bromide, because the traces of hyposulphite stick in the paper (in my opinion) long after they have soaked out of the emulsion. Nothing will get all traces of hypo out of the paper on which bromide emulsion is spread, except repeated squeez-

ing. I wash all my bromide prints in this way. I have a piece of thick plate glass. If I have twenty prints to wash, I make two piles of them, ten in each, face down; if thirty, then three piles, and squeeze out as much water as possible by rolling a squeegee over the pile twelve or fifteen times. Then the piles of prints are put back in the dish, and the running water from the tap soon separates the prints. They are then piled and squeezed again and again, until they have been piled and squeezed seven times. I used to do them only six times; but I occasionally test the water squeezed out with very dilute permanganate of potash, and I found that it would be faintly discolored after the sixth time, and even after the seventh if there were fifteen or sixteen prints in the piles instead of only ten. But with ten prints in a pile, seven squeezings of twelve rollings each will be found quite enough. I put down a coin at each successive squeezing, to keep count of the number.

This method of washing prints is more troublesome than leaving them "in running water". But anyone who leaves his prints for four hours, let alone the orthodox two, and will then pile them, squeeze them, and test the water squeezed out with permanganate, will receive a shock. He will no longer wonder why "bromides don't keep". But though more troublesome, it is quicker. Thirty prints can be perfectly washed in half an hour, and everyone who adopts this method may have every confidence of his bromide prints lasting longer than he will.—H. M. Underhill, in *Amateur Photographer.*

Blocking-Out For White and Black Backgrounds

D. Berlin recommends the use of yellow dye instead of opaque for blocking-out negatives where the background in the print is required white. The dye method is chiefly of use when printing on bromide or gaslight paper. It is far easier to work than where an opaque blocking-out mixture is used. Both will dissolve in hot water: for use, only a weak solution is needed. The plates should have been well washed in hypo, otherwise the dye is liable to fade on drying.

The essential part of the method is to go over the film immediately before painting with the dye with a piece of wet cotton-wool on which a little oxgall is sometimes needed to overcome any greasiness. The object of this preliminary moistening is to allow the dye to diffuse slightly beyond the edge of the brush mark, and the extent to which it does this is, of course, dependent on the amount of wet applied to the negative, and to some extent on the strength of the dye. A very few trials will show the best for the work in hand; for example, plates which have been hardened need more wet.

The great bugbear of all who "block out" is a part of a subject such as ladies' hair or a fluffy dog, but this dye method is just the thing for such cases, as one can go over the edge of the part with a wash of weak dye, which will add a little density to the background without clogging the hair, etc., and then proceed, as usual, with a stronger wash, when stray bits not wanted to print can be taken off without leaving a sharp edge.

To remove the dye, all that is needed is a very weak bath of hydrochloric acid.—*British Journal of Photography.*

Black Backgrounds For Microscopic Objects

Photomicrographers had a good innings at the Royal Photographic Society the other evening, when a discussion was opened by J. McIntosh on the preparation of fine-grained black backgrounds for opaque microscopic objects. The particular preparation which Mr. McIntosh had hit upon and advocated was obtained by using tinfoil, which has the merits of being inexpensive, possessing a really fine surface, and having no inconvenient springiness. Squares of this tinfoil he cements onto glass, and darkens the surface with antimony chloride, tragacanth being used as the adhesive. Some lantern slides of microscopic objects upon this background, subsequently shown by G. Ardaseer, revealed a certain amount of granularity, although some workers expressed the opinion that grain in the background was not altogether undesirable, being better than the emptiness of absolute opacity, unless, of course, it "kills" the object, which it must do in some cases. For objects of some little size, such as seeds, or rather larger shells than foraminifera, Mr. Ardaseer said that he used the dark-well method, employing a pill-box arrangement, thereby getting an absolutely black background.—*Amateur Photography.*

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Small Town Street Scenes

A professional friend, one located in a small town, one who finds it unprofitable to spend all his time in the studio waiting for sitters, dropped into town recently and paid us a visit while here. It has been his practice to solicit orders for postcard and 5x7 pictures of the residences and grounds of his fellow townsmen. Doing this he ran across a customer that gave him what proved to be a good idea. This customer explained that he did not want a picture of his own house alone, something that looked as if he was trying to sell the place, because he wanted the pictures to send to friends back East. What he wanted to show these friends was what kind of a street he lived on, what kind of houses his neighbors lived in, what kind of a town it was, if that was possible. Of course he wanted at least a part of his own house to show in the picture so that he could send along a print and advise that his house was the fourth from the corner, the one with the wire fence in front. Our friend made the picture and it pleased the customer greatly. Not only that but he sold a number of copies to nearly every resident on that side of the block and a few to others on the opposite side of the street, parties whose houses were not even shown in the picture. Since that time he has been going out as opportunity presented, and making views of promising blocks, showing the corner of the street and the houses on one side extending therefrom. He selects the side of the street and the direction from which it is taken according to the lighting, going back for the other side at a different hour of the day. He finds that this plan, while resulting in larger sales from each negative, does away with the annoyance of soliciting special, definite orders, leaving him only the usual work of showing samples and finding out just how many prints are wanted. His only regret is that this country does not provide two conditions, summer and winter, as he believes he could sell his customers just twice as many pictures by being able to show them two different aspects of their streets. A few night scenes have been made but the average residence district is rather unpromising after dark in his particular town.

To Remove An Ugly Background

A New York subscriber has an excellent portrait negative of his mother, but the background, the north side of his residence, is objectionable. He asks if it is feasible to carefully cut all around the head and shoulders and then scrape the film away, giving a black background in the print. It is feasible but the results will not be satisfactory. The proper procedure is to place the negative in a clean, fresh hypo bath and allow it to soak for ten minutes or longer, depending upon its age and the hardness of the film. While the negative is soaking, grind some red prussiate of potash crystals in a mortar until a very fine powder. Take out the negative, blot off all surface water, take a No. 3 or smaller brush and dip it into the hypo solution and then into the powder and apply around the outline of the figure, working always so that any running of the mixture will be away from the outline being followed. Also, always work near a tap of running water so that should the strong reducer which the mixture forms seems inclined to eat into the image of the figure the negative can at once be held under the flow of water and action immediately stopped. This work will produce some bad looking markings and streaks of a yellow color, but the final immersion of the negative in the hypo bath will correct all this. The offending background reduced away, the negative is again fixed and then subjected to a thorough washing. The figure will not have that hard outline, that cutout effect, resulting from scraping away of the film, and this latter method gives an objectionable blackness that is not the case with the image re-

duced out and the gelatine film allowed to remain. Furthermore, with the gelatine film left intact, the working in of a background by the ordinary method of using lead and a stump is easily done. The action of the reducer is to leave the film somewhat glassy so that it may be necessary to slightly roughen the surface with a little fine emery powder before attempting to work thereon.

Enlarged Paper Negatives

Replying to our Illinois correspondent, the procedure is as follows: From the original negative make a positive, by contact in a printing frame if small in size, but through an enlarging camera if post card size or larger. From this positive make an enlarged negative on any good bromide paper that is not too heavy or too rough in surface, make this last more translucent by oiling, and then print from it as from an ordinary film or plate negative. Returning to the small positive, that should be fully timed and developed to fair density, not quite that of a strong negative yet not so clear and brilliant as a good lantern slide. The enlargement on the paper should be fully exposed and carefully developed to obtain as long a scale of gradation as possible. Slight intensification will often help and one should not seek to secure entire freedom from deposit, even in the high lights. Oiling the paper negative is best done by laying the dry print, face down, on several sheets of soft paper and then with a rag apply ordinary coal oil or kerosene as evenly as posssible. This will appear somewhat blotchy at first but by putting aside in a not too cool atmosphere the oil will require but a few hours, more or less, depending upon the temperature, to distribute itself evenly through the paper. If the prints to be made are too large for any printing frame at hand, placing the paper on a drawing board, the paper negative above and a sheet of plate glass on top, will enable prints to be made by exposing the whole to the light for the required time.

Some Smooth Faces

One of my recent visitors showed me a print that was quite interesting and one that took a few minutes' study to determine just wherein the peculiarly pleasing effect originated. The picture was one of a group with a background of foliage and distant scenery, just such a one as we all make when out with a few friends. As is usual in such cases, a large stop was used so that the figures were the only sharp objects in the print. Printed on glossy paper they were not satisfactory, so our friend used a matt paper, but he did not stop there. Holding each print up against a window, he outlined each face in pencil on the back of the print. Then laying the print face down on a piece of glass he carefully burnished inside each outline with the rounded end of an old toothbrush handle filed down to the proper shape. This tool, in reality, being one that he ordinarily uses to emboss a line around his prints mounted on cover stock. The effect was very pleasing in the case of the particular print shown me although I feel that the plan is not capable of improving every kind of a print showing the human face, even if made on matt paper. With large heads or where all parts of the picture are fairly sharp, the effect might not be quite so satisfactory through being too obviously the result of manipulation.

Which Is The Coated Side?

An Illinois correspondent says he finds it difficult to determine the emulsion side of the paper in the dim light of his printing room. Our own plan is to hold the sheet in question horizontal between the eye and the lamp, slightly below the level, and then compare the two sides as to smoothness. The smoothest side is always the coated one, although the uncoated side of a sheet of the glossy kind may be smoother than the coated side of a sheet of rough surface paper. In addition, the paper always has a tendency to curl with the emulsion side inward. Old paper has a decided curl of this kind at the edges and fresh paper, particularly if in small sheets, will develop this curl to a recognizable degree if placed in the palm of the open hand for a few moments, or sufficiently long to permit the warmth of the body to somewhat permeate the sheet. The tip of the tongue, when applied fairly dry, touched to one side of the sheet, will also quickly determine whether it be coated or not, as it will have a slight inclination to stick to the emulsion and seem almost repelled by the uncoated side. With the tongue fairly dry and only an instant contact made, the small amount of moisture involved will dissipate itself before the paper can be inserted in the frame and the back closed down.

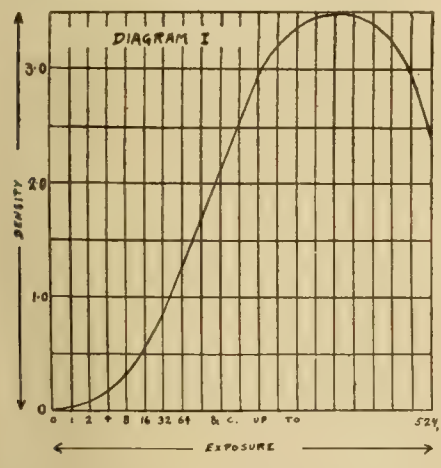
THE CAMERAMAN'S PAGE

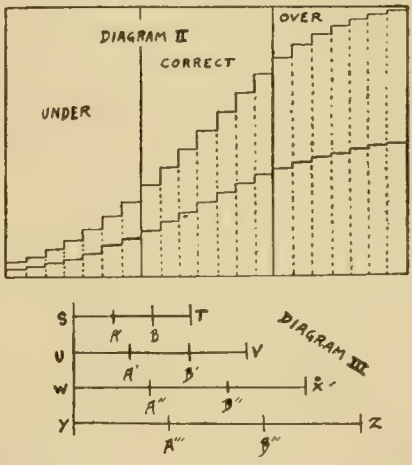
Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

Practical Aspects of the "Hurter & Driffield" System

The Hurter & Driffield system is perhaps the only comprehensive one for comparing different emulsion speeds that has ever been worked out on a strictly scientific basis, without influence of personal prejudice and without taking anything for granted. While the original objects of Messrs. Hurter & Driffield is of slight practical consequence to cameramen, some of their incidental deductions should be of considerable interest. So far as emulsion speeds are concerned, the speed of the Eastman negative stock, which is almost exclusively used in this country, varies so slightly, when at all, from one batch of emulsion to another, that the variation may be practically ignored. In working out this system of comparing different emulsion speeds on a strictly scientific quantitative basis, there were definitely formulated certain relations between exposure and tone values and between development and tone values that are inherent in any silver sensitized emulsion. These halations are not mere "theories", they exist and influence our results whether we thoroughly understand them.





Every practical cameraman knows, in a general way, that underexposure and overdevelopment produce contrast and harshness and that overexposure and underdevelopment produce the opposite or softness, although many of these same cameramen have never heard of the Hurter & Driffield system.

The subject is one that should interest, regardless of whether or not it affords anything new, from it; there are no doubt some, including a few laboratory men, to whom the exact relationship between exposure and development, will be news.

Not the least interesting part of the H. & D. system is the classification of the periods of under, correct, and overexposure. Diagramatically plotting exposure increases in geometric ratio with the resulting densities of the developed emulsion, there is obtained a peculiar curve, known as the "characteristic curve" of the particular emulsion being tested. While this curve varies with the different emulsions, there are indicated certain characteristics that are inherent in all photographic dry plates and films. Hurter & Driffield's classification divides exposures into four distinct phases, namely, underexposure, correct exposure, overexposure and reversal. On the characteristic curve of any emulsion the underexposure period appears

as a curve of increasing rise, the period of correct exposure appears as a straight line or period of equal rise, the period of overexposure appears as a curve of decreasing rise, while reversal is shown by inclination, this last being of downward curve of no concern, extending beyond ordinary overexposure.

Diagram I gives a typical characteristic curve, degree of density being shown by the distance from bottom to top: exposure being indicated in geometric order of increase from left to right. In Diagram II a characteristic curve is represented by means of steps passing through the periods of under, correct and overexposure, the vertical and the horizontal distance represent the same as in Diagram I. In Diagram II the two series of steps represent two identical series of exposures on the same emulsion, developed for different lengths of time in the same developer. This diagram shows that, while the range of density is extended by the increase of time of development, the relation between steps remains the same; the period of underexposure in each "staircase" is represented by an increasing rise of steps until the period of correct exposure is reached. Throughout this period there is a uniform rise from one step to the next, while in the period of overexposure there is a constantly decreasing rise in the steps representing increasing overexposure. Lengthening the time of development increases the steepness of the "staircase" but does not change the relationship between the steps, being termed the "law of constant density ratios".

The effect of development time may be illustrated thus: Exposing three sections of a certain emulsion to an unvarying light for periods of five, twenty and eighty seconds; then, if the light is of such strength that all fall within the period of correct exposure, the densities will be related to one another as 1, 2 and 3. Assuming line S T, Diagram III, to represent a piece of elastic, secured at S, three pins stuck through the elastic at distances of one, two and three inches from S will represent our three densities with a development time of, say, two minutes. A development time of four minutes might extend our elastic to the length U V, while still longer might result in W X or even longer resulting in Y Z. But, in each case the density of the exposure 5, 20 and 80 bear the same relations to one another as 1, 2 and 3.

However, Hurter & Driffield make a distinction between "density" and "opacity". Their investigations show that throughout the period of correct exposure in which the opacity values of a negative bear the correct relation to the luminosity of the subject, the density, the silver deposit, increases in an arithmetical progression as the exposure is increased in a geometrical one. To avoid confusion, the distinction between opacity and density, must be fully recognized. Opacity is the optical property of a substance to impede the passage of light; while density refers to the relative quantity of silver deposited per unit of area.

It is only when the density increases arithmetically as the exposure is increased geometrically that the opacity of the negative represents the true relations of light and shade. When the exposure is less than the minimum correct one or greater than the maximum correct one, this does not hold. No modification of developer or variation of development time can lift an exposure from "increasing rise" of the underexposure section into the "uniform rise" of the correct exposure section of our "characteristic curve". Likewise, laboratory work cannot transplant an exposure falling within the "decreasing rise" of the overexposure section, into the "uniform rise" section. Within certain limits, however, the general opacity of the negative may be varied and the steepness of the "staircase" of our characteristic curve can be somewhat controlled in the laboratory.

Referring again to Diagram III, if the exposures had been within the period of underexposure, A would have been nearer S than B to T. With increased development time, the range of density (i. e., contrast) would be increased, but A′ would still be relatively nearer U than B′ to V; A″ would be relatively nearer W than B″ to X; and A‴ would be relatively nearer Y than B‴ to Z. If the exposures had been within the period of overexposure, A would have been farther from S than B from T; A′ farther from U than B′ from V; and so on. That is, in underexposure the darker half-tones too nearly approach the blackest shadows, and in overexposure the lighter half-tones too nearly approach the brightest highlights.

Although the laboratory man can control development time so as to produce a negative of the best range of density from which to

print, he cannot by any possible manipulation produce a negative with the actual, true-to-life gradation of correct exposure, from a film that has been underexposed. While both slight underexposure and the slight overexposure may, and often do, "get by", the highest skill of the laboratory man cannot make even these comply perfectly with the definition of a technically perfect negative, one "in which the opacities of its gradation are proportional to the light reflected by those parts of the original object which they represent".

As suggested, two or more different exposure times may fall within the latitude of the period of correct exposure; and developed for the same time in the same developer, they must vary in general opacity, and therefore be printed by different lights in order to produce uniform prints. Nevertheless, these differing exposures within the latitude of the "correct exposure" period, have the same range of gradations and the same proportionate relations of halftones to highlights and shadows, although the negatives vary in general opacity. Hence, were all exposures within the period of correct exposure, "technically perfect" negatives would be obtained with an unvaried time and temperature of the same developer.

We are well aware that this is not in accord with the ideal, held by some laboratory men, of having every scene of such general opacity as to make one uniform printing light. But, if you have any doubt, try it on your camera.

In practice, we are indeed fortunate if we can always get the minimum correct exposure and still stop down to get sufficient depth of field; and again, there are effects that demand abnormal gradations in the negative. Therefore, it will be time before the competent laboratory man is supplanted by the exclusively time and temperature methods of tank development so popular in "still" photography.

Davsco Camera

Recently we had the privilege of trying one of the new Davsco Cameras, sold by the David Stern Company of Chicago. It should prove handy for news film and home talent pictures.

This camera is extremely small in bulk, light in weight, and simple in construction. Everything is so simplified that we are tempted to compare it with the Brownie in the still camera field. That it may, as little as possible, confuse the novice, the Davsco camera even has an exposure estimator, somewhat similar to a kodak autotime scale, affixed to its front.

The lens is the usual Bausch & Lomb of two-inch focus, working at f-3.5, mounted in focussing mount with legible indicator to distance scale.

The two metal magazines of two hundred foot capacity lie side by side within the camera, the film traveling from one to the other by means of a double loop arrangement, somewhat similar to that of the enclosed magazine type Pathe.

While this camera is without attachments demanded in a professional outfit selling for several times the price, it is certainly good value for the person who does not contemplate doing professional work. The camera is sold for one hundred and ten dollars.

Incidentally, Mr. Bass of the David Stern Company advises us that his firm is agent for the Universal Camera, a number of which are carried in stock. This camera was described in this department a few months ago.

Illinois College of Photography

One of our students, S. L. Ho, who was sent here by the Government of China, recently completed his course; and, during the past month, sailed for his home in Shanghai.

In celebration of Halloween, a number of the students journeyed to the banks of Lake Kanagga, where a wiener roast was the principal diversion of an evening's "rustication". Everyone enjoyed the outing, and all are in favor of another one.

For the past two years, Kelsey Gardner, an "I. C. P.", has been employed in the Photographic Department of the University of Illinois at Champaign. Recently he resigned to take a collegiate course near his home in Topeka, Kansas. His vacancy will be filled by Louis Beegle, also of the College.

J. A. Rinehart, for a number of years Secretary of the Colleges, paid us a visit last month. His trip to Effingham was for the purpose of enjoying his favorite pastime, hunting. John, as he is best known, is now Assistant Secretary of the Public Utilities Commission of Illinois, with offices at Springfield, the capital.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

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NEW MEMBERS.

4268—Wm. Walter Beech, 2001 S. 58th St., Philadelphia, Pa.
2½x4¼ and 3¼x4¼, various papers, of historic and scenic; for any size scenery, waterfalls, mountains, statues, studies and current events of anything of interest. Class 1.

4269—W. A. Gillespie, P. O. Box 156, Stamps, Ark.
Class 2.

4270—R. B. Manck, Nazareth, Pa.
3¼x5½, various papers, of historical scenes and child studies; for figure studies draped and undraped. Postcards or paper. Class 1.

4271—Henry Hapke, 1901 South St., Lake Charles, La.
2¼x3¼, 2½x4¼ and 3¼x5½, various papers, of miscellaneous views; for anything that is good of any subject. Class 1.

4272—M. C. Nordling, 201 Genesee St., Waukegan, Ill.
Class 2.

4273—Frank P. Martin, Box 13, Tionesta, Pa.
Class 2.

4274—Peter Anderson, Germantown Route, Thief River Falls, Minn.
2½x4¼, developing papers, of city and country views and general subjects; for general subjects of anything interesting. Class 1.

4275—Albin Jacobsen, Howardville, Manitoba, Canada.
Class 3.

4276—Roderick Gallie, 411 West 13th St., Little Rock, Ark.
Class 2.

4277—E. Riley Youngs, The Molsons Bank, Frankford, Ont., Canada.
2½x4¼, developing papers, of general, Niagara Falls, St. Lawrence, Lake Erie ports, Upper Lakes and cities; for views of general interest. Class 1.

4278—A. W. Hare, King St., Iroquois, Ont., Canada.
2¼x3¼ and 5x7, various papers, of marine, nature studies, figure studies, interiors and railway scenes; for bathing pictures, nude studies, interiors, California nature scenes, and anything of general interest.

4279—John S. Reid, Jr., 6239 Greenwood Ave., Apt. 1, Chicago, Ill.
4½x6 cm. (1¾x2⅜ approximately) various papers, of theatrical pictures, pictures taken from seat in the theatres during actual performances; for similar pictures and those showing mode of motion pictures on the screens during performances in motion picture theatres and other pictures of unusual photographic interest, preferably small pictures. Class 1.

4280—Forrest C. Strong, R. F. D. No. 1, Box 42, Bloomingdale, Mich.
3¼x5½ or 8x14 cm., various papers, of landscapes, waterscapes, botanical studies and bird pictures; for anything of the above nature, also street scenes and accident views are acceptable. Class 1.

4281—Luis E. Manon, P. O. Box 71, Santo Domingo, Dominican Rep.
Postcards, 5x7 and 4½x6½, various papers, of landscapes, marines, old ruins, animals, birds, mountain scenery, street scenes, curious and historical views; for landscapes, marines, interesting ceremonials or events, mountain scenery, street scenes, curious, historical, typical and miscellaneous scenes. Class 1.

4282—Lee L. Bailey, Moline, Kans.
3¼x5½ and 5x7, various papers, of commercial work, mostly views and groups; for house groups and miscellaneous. Class 1.

4283—M. L. Lampe, Tesla Studios, Wanganui, New Zealand. Class 2.

4284—E. V. Rowland, 171 Bubbling Well Road, Shanghai, China.
3¼x4½ and enlargements, various papers, of Chinese figure studies, Chinese temples and waterways; for old ruins, landscapes, mountain scenery and portraits. Class 1.

RENEWALS.

2025X—V. A. Wood, R. F. D. No. 1, Hackensack, N. J.
4x5, developing papers, of genre, scenic, farm scenes, etc.; for genre, especially children, scenic and farm views. Prints and lantern slides. Class 1.

3770—J. William Harmon, P. O. Clark's Box, Oklahoma, Okla.
3¼x5½, 5x7 and intermediate, masked sizes, single weight developing papers, no post cards, of landscapes, Western scenery, Canada and Rocky Mountains, snow scenes, marines, etc., also a few child studies; for similar subjects, cloud effects, snow scenes, and foreign views especially desirable, no straight portraiture wanted. Only first class work sent or accepted. Class 1.

4037X—Alfred Geo. Wolff, 157 Fulton Ave., Astoria, Long Island, N. Y.
Postcards, of general views; for the same. Class 1.

4133—J. W. Geo. Winkler, P. O. Box 475, George, Iowa.
8x10 and smaller, developing papers, of general landscapes and studio sittings; for general views. Class 1.

4136—C. E. Fey, P. O. Box 612, Laramie, Wyo.
Class 2.

CHANGE OF ADDRESS.

1734—H. W. O'Neill, Box 2111, Minneapolis, Minn.
(Was 116 So. 4th St.)

3281—B. W. Lemley, Beatrice, Nebr.
(Was Thorp, Wis.)

3901—Monte McFry, R. F. D. No. 3, Box 59, Billings, Mont.
(Was Douglas, Ariz.)

4156—Thos. P. Mason, 4306 Brooklyn Ave., Kansas City, Mo.
(Was 2333 Lawn Ave.)

4200—Ira J. Bugbee, 708 W. Fourth St., Santa Ana, Cal.
(Was Pasadena, Cal.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Milwaukee Selected

The next or 1917 Convention of the Photographers' Association of America will be held in Milwaukee, according to an announcement just received, the dates to be decided upon at the meeting of the Board in January.

U. C. C. Annual Exhibition

The Annual Exhibition of the B. Y. M. C. Union Camera Club, 48 Boylston Street, Boston, was opened to the public from Wednesday evening, December sixth, to Saturday evening, December ninth, and the collection of photographs shown was well worth a visit.

First and second prizes were awarded in each class as follows: Landscape: Arthur Hammond and T. Willis Gary; Portrait: Arthur Hammond and Louis Astrella; Marine: F. W. Hill and C. E. Dodge; Genre: Chester Grillo and Louis Astrella; General: G. H. Seelig and Charles G. Wells.

The judges were Frederick W. Horsman, Frederick W. Allen and Florence Maynard. In several cases prizes went to one of the newer members.

The B. Y. M. C. Union Camera Club, organized in 1908, has a membership of seventy-five, mostly amateur photographers. The club quarters are well equipped with dark rooms for developing and facilities for printing, enlarging, and indoor photography. A social room and locker accommodation for members is also provided.

Oregon Camera Club

In line with the accelerated interest in club matters and the resultant activity therein, was the first of a new series of monthly meetings, held Tuesday evening, November twenty-first, at the club rooms in the Washington Building, Portland. A gratifying attendance of members and their friends enjoyed an elaborate lantern and color slide exhibition given in connection with a social programme. The slides shown covered the many interesting and pictorial scenes for which Oregon is famous, through the courtesy of Mr. Leutters of the Winter Photo Company, and the slide-making members of the club. Will H. Walker, an old member who has done much to stimulate interest in the new activity, gave a short talk on the advantages of club membership to amateur photographers, announcing a series of instructive lectures for the coming club season. The social programme was varied and enjoyable and the committee in charge announce the next similar gathering for the evening of Tuesday, December nineteenth.

OUR BOOK SHELVES

"American Annual of Photography, 1917"

This, the only photographic annual published in this country, reaches us with the usual full complement of extremely good pictures and articles that make up its contents. The illustrations, numbering some two hundred or more, are varied in character and many of them are given an added value by being printed in a sepia ink on buff inserts, this giving them quite a photographic appearance not usually achieved in the ordinary reproduction. The articles, covering a wide field, are particularly interesting and instructive and the editor, Percy Y. Howe, deserves great credit for his success in getting together such an amount of valuable photographic information and entertainment. This annual is so well known that little or no description is necessary and as practically every dealer has it for sale, an examination

is easily made. George Murphy, Incorporated, 59 East Ninth Street, New York, are sole sales agents, supplying the trade, but would no doubt furnish single copies at the retail price of one dollar for the paper cover edition and one dollar and fifty cents for the cloth-bound one, in case one cannot obtain the volume through his local dealer.

"Photog·ams of the Year 1916"

"Photograms of the Year 1916" is announced to be published in England late in December, and to be ready for delivery here late in January—submarines and other difficulties not interfering. "Photograms of the Year" occupies a unique position as the only year-book which gives a review of the progress of pictorial photography throughout the world, including reproductions of pictures from the London Salon and the Exhibition of the Royal Photographic Society. The price of "Photograms", as before, will be: Stiff paper covers, one dollar and twenty-five cents, postpaid; cloth boards, one dollar and seventy-five cents, postpaid. As there will be only one shipment of the edition for America, and this is liable to be sold out by the time the book arrives, those who desire copies of "Photograms, 1916", should place their order with their dealer at once. It can be ordered from Tennant and Ward, 103 Park Avenue, New York, or locally from Hirsch & Kaiser, 218 Post Street, San Francisco, California.

"Open That Door!"

We are all readers, but do we profit by our reading? We may know of those who live in their books but we ourselves fail to get even a part of this enjoyment from what we read, just as we know others who get the best out of life, while we do not seem to possess the key.' R. Sturgis Ingersoll, the author of this book, has given us, the men and women who are doing the work of the world, an introduction, the key as it were, to the great source of inspiration and fellowship that literature provides. Literature, what we read, influences our thought activity, our very understanding of life. The intimate association with the great minds of all ages that our books afford should not be cast carelessly aside for want of a little knowledge as to how one may best approach this storehouse of inspirations. "Open the Door!" in a way of its own, will make available the knowledge and inspiration that great minds have left us as a rich heritage. Published by J. B. Lippincott Company, East Washington Square, Philadelphia. Price one dollar net.

Another of the "Spell Series"

The very latest of that charming collection of travel books known as the Spell Series is "The Spell of the Hawaiian Islands and the Philippines", by Isabel Anderson, a writer having the happy faculty of imparting information concerning a country and its people in a most enjoyable and entertaining manner. The one who has read "The Spell of Belgium" and "The Spell of Japan", by the same writer will ask for no further recommendation of this, the last of Mrs. Anderson's works. The book is a handsome one, bound in cloth, decorated, and it has, in addition to an excellent map of the two countries, some fifty or more full page illustrations, several of them in full colors. Published by The Page Company, 53 Beacon Street, Boston Massachusetts. Price two dollars and fifty cents net; carriage paid, twenty cents additional.

"How To Use Your Mind"

Professor Harry D. Kitson of the Department of Psychology, University of California, has, in giving us this book, made available in a readable, yet thoroughly scientific form, practical advice as to the proper method of approaching and carrying on the work that confronts the student. While the title page affirms the work as "A Manual for the Use of Students and Teachers in the Administration of Supervised Study," the author, in his preface, displays a keen appreciation of further fields. He says: "Brain workers in business and industry feel deeply the need of greater mental efficiency and seek eagerly for means to attain it." Both to the student and to the men falling within this last classification, the book should appeal as a real help and a practical guide. Published by J. B. Lippincott Company, East Washington Square, Philadelphia. Price one dollar net.

"Training For Newspaper Trade"

The author, Don C. Seitz, the business manager of the *New York World,* is known throughout the world as a great newspaper man and the best after-dinner speaker in the game. He certainly should be able to write a book that is stimulating and informative, one that should be of untold value to

the young man or woman thinking of entering the fascinating field of journalism. Read this work and you will agree that Don Seitz can write such a book. It is the book to read if you want to get at the heart of the business, if you want to know how to succeed therein. Every line of the work is covered: the reporting, editing, advertising, circularization, even the mechanical. Published by J. B. Lippincott Company, East Washington Square, Philadelphia. Price one dollar and twenty-five cents net.

"The Wellcome Exposure Record and Diary, 1917"

The new or 1917 edition of this popular photographer's pocket companion is to hand, and as usual, is almost unbelievably filled with photographic information and possibilities in the way of recording one's exposures and the like. The new edition contains several noteworthy changes and additions such as an up-to-date speed rating table, tank development table, notes on the photographic processes of developing, toning and the like, together with exposure figures for every kind of subject. This handsome little red book is now so well known in this country that any extended description is not required and we can only advise our readers who are unacquainted with its many points of merit, to look it up at their stock house and examine it thoroughly for themselves. Despite the increased cost of paper the new issue will be sold at the same price as usual, that is, fifty cents per copy. The "Wellcome Exposure Record and Diary" can be obtained from all photographic dealers and booksellers, Marsh & Company, 712 Market Street, San Francisco, being Pacific Coast distributors.

NOTES AND COMMENT

A Department Devoted to the Interests of our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

C. C. Green of Salinas has just completed a busy year.

O. Ravnos will open a new studio in Santa Cruz this month.

L. E. Sherwood is now with the Logan studio at Stockton.

A. C. Henline of Klamath is the busiest photographer in that section.

O. Hayman of Watsonville has been very busy during the holiday season.

Wm. Horwarth of Roberts & Horwarth is doing some fine coloring with the new Mandeville and the Roehrig's oil colors.

Miss Minnie Bodenschatz of the Tucker studio is to be married in the near future. She will be greatly missed, particularly as she will be leaving the state.

Farming and photography is the new combination with Frank Aston of San Luis Obispo. Frank has forty acres set out in almonds that will begin bearing in 1917.

A Correction

An inaccuracy occurred in the specifications of the Ansco V-P No. 0 in Ansco Company's advertisement of this model in the December number. This camera is furnished with Actus shutter and Modico Anastigmat lens, f-7.5, at fifteen dollars and with Extraspeed Bionic shutter and Ansco Anastigmat lens, f-6.3, at twenty-five dollars.

Photographic Portraiture

As to the illumination in photographic portraiture, there is a great diversity of opinion. I am done with daylight for an illuminant when I can obtain electric light, especially the mercury-vapor light. I am absolutely convinced that this is the light par excellence for photographic portraiture. First of all, it is an even, steady light. It is constant. It does not radiate heat as much as do other forms of electrical illuminants. It is not hard on the eyes of either sitter or operator, the former being able to gaze directly at it without squinting. It is mono-

chromatic. To me, this is one of its greatest advantages, as the sitter loses all color, becoming just a study in monochrome, with high-lights, half-tones and shadows all perfectly perceptible to the operator's eye.—Dr. T. W. Kilmer, in *Photo Era.*

Some Nice Little Booklets

Dropping in at one of the local stores recently, we found on the counter some exceptionally fine little booklets. One of them describes in detail the many good qualities of the several models making up the popular kodak line, the contents include a very instructive paper entitled "On Winter Photography". Another is devoted in the same way to the well-known Premo line and a few accessories that will also interest the camera user. Still another booklet calls attention to the new Kodak Bank, a device whereby the prospective camera owner can early gratify his desires in that direction by saving the spare dimes that fall into his hands. A little folder gotten out by the same firm, equally if not more interesting, although less pretentious, shows the possibilities of the No. 00 Cartridge Premo that retails for the insignificant sum of seventy-five cents. Six excellent pictures, pictures that any amateur would be proud to claim as his own work, and pictures that are well within the possibilities of this camera, are reproduced together with an enlargement from one of these negatives. This little folder is interesting and instructive and our readers should not fail to look up these several interesting pieces of printed matter that their dealers should have on their counters for free distribution.

A Very Gratifying Outlook

A recent letter from the Wollensak Optical Company of Rochester, New York, advises that the firm finds itself in a most satisfactory position in regard to the optical glass situation although the conditions governing are still not entirely free from being critical. The firm looks forward to a year of uninterrupted deliveries of all orders, covering the many excellent products listed in their catalogue. Only a few months ago they found it necessary to install a very complete lens moulding plant and since that time have been compelled to increase its capacity to double its original one. We are more than pleased to learn that the outlook is so promising, and to find this enterprising firm so optimistic; conditions that cause them to feel justified in increasing their advertising for the coming year as they are doing.

The Right Lens

In calling attention, as we did last month, to the booklet "What Lens Shall I Buy", published by the Bausch & Lomb Optical Company, 624 St. Paul Street, Rochester, New York, we neglected to say that it answers a class of questions that puzzle the minds of many amateurs. If you would like to know the best lens to use for various kinds of subjects, simply look in the alphabetical list of subjects for the required information. The booklet also contains a table showing lenses recommended for various popular cameras. This information is of value to a prospective purchaser, and a copy of the booklet, gladly sent free by the Bausch & Lomb Optical Company, should be in the hands of every amateur.

Some Big Bargains

There are a great many real bargains in cameras, lenses and supplies listed in the big bargain sheet just issued by the Mission Photo Supply Company, 88 Third Street, San Francisco. In addition to used cameras and lenses, the list includes all kinds of supplies, such as plateholders, tripods, film pack adapters, glassware and all kinds of photographic sundries. Write for your copy today, and see if you do not find something listed therein that you have been looking for. Copies of this list are sent free for the asking.

Illinois College of Photography

Mr. Viscaino is planning to return to the United States where he will be able to secure work in the engraving line.

We learn with sorrow of the recent death of T. F. Cass, in Chicago. Mrs. Cass is a former student of the College, herself and husband having spent part of the past winter in this city, coming here from the Philippine Islands where Mr. Cass held a government position.

Glen Stratton, who was with us the first few months of 1916, has since played a part in two important events, his marriage and the purchasing of a studio. Previous to the latter he was employed in the Thomas Studio in Crystal Falls, Michigan. We wish him the best of success.

IV No. 2 FEBRUARY, 1917 Price, 10 Cents

CAMERA CRAFT

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CALIFORNIA

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for the

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A Photographic Monthly

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Hirsch & Kaiser
218 Post Street San Francisco

A WATERWAY IN PORTUGAL
By DR. S. BRUM DO CANTO

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY
FAYETTE J. CLUTE, Editor
CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA
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Exposure and Exposure Meters

By Dr. S. Brum Do Canto

With Illustrations by the Author

In order that the latent photographic image, whatever be its nature, may, after development, exactly reproduce the gradations from high light to shadow of the object photographed, full or correct exposure of the sensitive surface is required. Light reflected from the object must act for the proper period in order to give a correct representation. This is an axiom that no one can ignore if he would produce good photographs.

In order that one may resolve the problem of exposure it is necessary, as is known, to take account of three essential factors: The rapidity of the plate, the opening of the objective, and the strength of the light illuminating the subject to be reproduced. The first two can be easily determined. The sensitometers of Warnerke, Scheiner, Hurter & Driffield, Wynne, Watkins and others, provide a classification of plates and films according to their relative rapidities, and all are familiar with the law of inverse squares that govern the relationship between the several lens openings. The determination of the third factor introduces the one great stumbling block because we cannot determine the photographic value of light by the eye alone, although some may affirm to the contrary.

In all lights, both natural and artificial, there are, in effect, two qualities to be considered, namely, intensity or clearness, which acts on the eye and by means of which we see; and, actinicity of light power, which is the quality producing physico-chemical change, an effect particularly important in the case of the photographic image. Even were these different qualities always equal or even had they a definite relationship, one to the other, and we could base

our determination of correct exposure upon the intensity of the light, we would still be quite unable to depend upon the unaided human vision. This has long been demonstrated by the photometer, an instrument measuring the intensity of various forms of light.

Quoting from "Illumination" by Trotter: "One of the difficulties of this subject is that the use of light and illumination is to satisfy the eye, and the eye is a very poor judge of the physical quantities in question. It is known that even experts cannot make a tolerable estimate of the candle power of a lamp by merely looking at it when alight. * * * Comparative estimates are not much better. It is easy to see that a twelve candle-power gives less light than a sixteen candle-power lamp, but it is very difficult to say how much less.

GOOD NIGHT, MOTHER

"It is difficult to make a quantitative measurement of our sensations. * * * The attempt to apply measurement to sensations of smell has not met with success, and, in spite of the delicacy with which different sensations of taste may be discriminated, it not only seems impossible to measure taste, but there appears to be physiological reasons for a rapid approach to a saturated condition of the sensation. A similar difficulty arises in the action of the light on the eye."

Quoting from "Photometrical Measurements" by Stein: "Thus no one can depend upon the eye to compare the intensity of one light source with that of another. A much greater complication is introduced when the change of the sensation with respect to the variation of the exciting light source is considered. This subject has been investigated by exhaustive experiments by Fechner, Weber, Helmholtz and others; and, though a law rigidly adhered to has not been discovered, yet the intensity of normal sensations has been found to follow somewhat closely a relation known as Fechner's law. The simplest statement of this law is that the differences in sensations vary as the logarithm of the ratio of the stimuli producing the differing sensations. If the strength of the sensation was directly proportional to the excitation, a light A, which is

TWO TYPICAL SCENES IN PORTUGAL

twice as strong as a similar light B, would produce a sensation a==2b, and the mind could in the general, form fairly accurate judgments of the relative intensities of light. But, the actual relation between the strength of the sensation and its stimulus being so complex, the resulting judgment is confused, and comparisons of the intensity of illumination by the unaided eye are unreliable."

A WATERWAY IN PORTUGAL

This points out the lack of memory of sensations and particularly of luminous sensations and eye fatigue, while the Purkinje effect, the anomaly of vision, still further complicates. We must deal with an uncertain degree of appreciation of light reflected and diffused from various surfaces, but with the facility of accommodation of human vision to illumination of diverse intensities, as a very simple example will illustrate: In an apartment, rightly illuminated as during the middle of a June day, we see all objects very clearly; but as

ALMOURAL CASTLE—PORTUGAL

evening comes on with its diminution of the light, our vision gradually accommodates itself thereto, until at last we see all objects quite clearly with the apartment illuminated simply by a single electric bulb of forty candle-power. Every photographer knows quite well how perfectly the vision accommodates itself, in about half an hour, to the feeble unactinic light of the dark-room. But the problem of visual valuation of the light factor in the determination of exposure becomes still more complex when one considers that the actinicity or photographic power of the light differs enormously from its visual brilliancy. To give some idea of the difference that may exist it has been found that, taking as a standard the Heffner candle; the light of which is equal in actinicity and brilliancy, we find that while five centigrams of magnesium has an illuminating power of only eighty candles, it has an actinic or photographic power of one thousand six hundred and twenty-eight candles. It is quite evident that, in determining exposure, we cannot trust our eyes to estimate the actinic value of the light.

Exposure tables, as we all know, afford a rather rudimentary and imperfect solution of the problem of correct exposure. Quite frequently they approach the truth only for the particular latitude for which they have been calculated and they are often rather complex and tiresome, while the personal element influences

the result to no small degree. Using the words "open sky", "dark interior", "under trees" and so on, involves a lack of precision easily responsible for very grave errors.

The only perfect solution of the problem is afforded by the actinometer or exposure meter, a small apparatus which, when properly designed, indicates with sufficient precision the exposure time, taking always into consideration the three factors; rapidity of plate or film, size of diaphragm and actinicity of the light. Of these there are two fundamentally different types: One relying upon direct vision and another using sensitized paper. To the first belong the Heyde and others that employ the blue filters having progressive degrees of density, the apparatus being so constructed that as one views the subject through a sight or slit a movable blue filter progressively obscures the view until it becomes invisible. Graduated scales then show, either directly or by means of a more or less simple calculation, the exposure time for any given plate speed and diaphragm number. With these the determination of the photographic values of the light is based upon its brilliancy or intensity, which last we have shown differs greatly from its actinicity.

MADAM B. R. L.

To cite an example, an exposure meter of this type will indicate a rather short exposure for an interior illuminated solely by incandescent gas, which in all likelihood an hour's exposure might not suffice. Furthermore, this form confides its determination of light value to the human eye, the sensibility of which varies with the individual, and even in the same individual, as already demonstrated. Furthermore, such meters not infrequently furnish diverse indications in the hands of different individuals, and even in the hands of the same individual on different occasions. As an experiment, take one of these meters and, looking through it at some open air subject, the indicated exposure will at first be found considerable less than is the case after three or four minutes examination. This because the retina of the eye gradually accommodates itself to

the more or less feeble monochromatic light that traverses the colored filter, the more so as the blue coloration favors visibility under very weak light.

Exposure meters using sensitive paper base their determination upon the time required by such paper in darkening to correspond to a given standard tint or color. This "actinometer time", in connection with a scale, gives the exposures required. While this type of meter gives very good results, it is important that the exact moment at which the sensitive paper attains the standard tint be recognized. This demands that the former, as it changes by being exposed to the light, comes to the same color as well as depth of tone as the latter, the standard tint; a comparison of two tones of different color being practically impossible, particularly with one of them constantly increasing in intensity. This identity of color being seemingly unobtainable, an approach to this condition obtained by interposing slightly blue tinted glass, as in the Watkin's Meter, is accepted.

An exposure meter, to be serviceable, should measure the actinometric value of the light illuminating the subject. The theory that it is the light reflected from the subject that should be measured, is a false one. Alfred Watkins says: "I have tested it in this way: Two plaster casts were taken, one white, the other a dark brown. The light reflected from each was carefully tested by an actinometer under equal circumstances, all extraneous light being screened off. Plates were then exposed for times proportional to the actinometer times. As I expected the two negatives were identical in density and would, if printed, give false ideas of the difference between the white and brown casts." Furthermore, the results of the meter tests should not be influenced by any light other than that acting within the angle of the lens, a requirement the Watkins meter fulfils quite well, making it one of the best of its type. I would, however, offer a few suggestions covering its employment.

With all meters of this type, the user in southern countries, should, for certain subjects, divide the indicated exposure time by a given factor. Some subjects requiring the full indicated or standard exposure time and these are: Portraits and groups made in a studio, and interiors and very deep forest scenes or views, these having the same conditions and aspects as they present in England. A street scene, a portrait in the open air, or a landscape may also take the meter time as the correct exposure, but one must remember that in England and other northern countries, the facades of the buildings are generally dull, the green of the trees pronounced, the soil quite dark, and the sky far from brilliant, while in Portugal, Spain, Italy, and other southern countries, the tonality of these subjects is often much higher, and the sky reflects a more actinic light, so that frequently an exposure only one-half that indicated by the meter is required.

After making a series of methodical experiments, I have arranged the different subjects considered in four classes. The first, requiring one-half indicated time, includes landscapes with foreground, street scenes, portraits and groups out of doors, and like open air scenes. The second class, in which the meter time is to be divided by four, comprises light colored objects, open landscapes and lake or water scenes. Sea views with shipping, snow scenes, white, or white and black objects, make up the third class calling for a division by six, while

THE WATER MILL—PORTUGAL

A WAYSIDE FOUNTAIN

the indicated exposure for sky and sea combinations, or sky alone, call for a division by fifteen. These latter exposures are often so short that the meter time can be conveniently measured only by interposing a colored screen over the meter opening and this necessitates a determination of the former's coefficient. The yellow screen that I employ has a coefficient of five times, this being used whenever the meter time falls below four seconds.

One should also bear in mind that the sensitive paper, while enclosed within the meter, will often retain its full sensitiveness for a year or over, should be secured from a reliable dealer or direct from the manufacturer at periods not too widely separated. The standard color slip should also be renewed from time to time, as it changes somewhat with age. Furthermore, the special color plate meter should be employed for both panchromatic and color plates; and when used for open air subjects in southern countries, its indicated exposure time should be reduced one-third.

In closing I would emphasize the fact that even the best exposure meters do not absolutely resolve the problem of exposure time. Even with a full understanding of the use of an exposure meter, one cannot be sure of absolutely correct exposure in each and every case; but rightly used, it will reduce the amount of error to a point well within the limit of tolerance of a good plate or film.

LIGHT CONTROLLED—Using a Series V, No. 3, Bausch & Lomb Zeiss lens, stop U. S. 128, and a Seed Non-Halation Ortho plate, an exposure of twelve minutes was given. Developed in Formosulphite-Pyro, forty-five minutes at sixty-five degrees Fahrenheit.

Photographing Interiors

By Charles Erwin Arnold

With Illustrations by the Author

It is acknowledged that interiors, the interiors of rooms, offices and the like, are extremely difficult subjects to handle successfully, and this is perhaps the reason why the demand for work of this kind is not greater. The average commercial photographer does not particularly encourage this line of business and he too frequently permits himself to offer his customer work that can hardly be satisfactory. Interiors, rightly handled, make very interesting pictures; and, properly made, they are greatly appreciated by the customers for whom they are produced. I have frequently been engaged to photograph one or two of the rooms in a home or building and then, as the prints were delivered, received an order to photograph all or a good part of the other rooms on condition that the results be of equally good character. Not infrequently I have been given orders for one or more albums made up of views of every room in a house, these resulting from the satisfactory outcome of an order for a picture of a single room. In many other instances I have received good orders from people who have been shown examples of my work made in

WINDOW ILLUMINATION CONTROLLED—Using a Series IV, No. 5, Bausch & Lomb Zeiss lens, stop U. S. 128 and a Seed Non-Halation Ortho plate, an exposure of two hours and fifteen minutes was given to accommodate the shadows. Developed in tank with Formosulphite-Pyro, one hour at sixty degrees Fahrenheit.

the home or office of some acquaintance, all this showing that quite a nice business can be done in this line if the photographer will only give it the care and attention necessary to turn out pictures that lack the too common grotesque character and soot-and-whitewash quality of much that passes for interior photography.

In my interior work I depend practically entirely upon daylight as an illuminant, using flashlight only when life must be depicted, as is often the case with pictures intended for illustrating or advertising purposes. Flashlight has its advantages, but it is, to my mind, unsuited to the portrayal of an interior for the simple reason that the lighting effect secured is not that natural to the room and it does not give the windows and the open doors into other rooms their natural and logical appearance. True, using a flash does much to simplify matters, but while the result may not seem particularly unsatisfactory to the photographer who has seen the room only once, the customer, more familiar therewith, perhaps hardly recognizes the scene when the lighting is from a point practically opposite that from which it normally comes and the parts of the room generally in shadow are shown as the best lighted and most noticeable. We can, by only a moment's thought, recall how strange some room with which we are quite familiar looks when seen for the first time illuminated by perhaps a large chandelier near the center instead of the natural light coming in through the windows.

Using daylight and a long exposure one is in a position to do almost anything he may wish in the matter of evening up the exposure, particularly if there are a number of doors and windows through which the light enters. It all becomes a matter of a little judgment as to how long each such opening should be allowed to furnish its share of the light used. A window back or well to one side of the camera may be allowed to remain unobscured during the entire exposure. One coming within the view may be best covered during one-half the exposure, perhaps for a greater or lesser period. It is obvious that if it be covered for too great a part of the total exposure a false effect, somewhat akin to that resulting from a flash from behind the camera, would result. If the principal light of a room enter through a large window in front of the camera, that light should be allowed to dominate the lesser lights that other windows afford. The obscuring of a window in front of the camera can be carried to such a point that the view outside shows plainly in the picture; and, when this can be done without falsifying the lighting, it adds much to the interest of the picture, adds much to its charm. Frequently the sash of such windows become obscured in halation, or would so become were not control exercised in developing, when the necessary amount of light is allowed to enter through them. The proper procedure is to so regulate the time they are allowed to remain uncovered so that the proper lighting effect is secured and then; if overexposure of the window itself results, use such control as may be possible in development.

The above indicates clearly two forms of control, that of covering or darkening windows or doors for a portion of the exposure time and that of holding back development of brilliantly lighted areas in making the negative. The first

AN EASY SUBJECT—Using a Series V, No. 3, Bausch & Lomb Zeiss lens, stop U. S. 64 and a Seed Non-Halation Ortho plate, an exposure of fifteen minutes was given. Developed in tank with Formosulphite-Pyro, forty-five minutes at sixty-five degrees Fahrenheit.

LIGHTING CONTROLLED—Using a Series V, No. 5, Bausch & Lomb Zeiss lens, stop U. S. 64 and a Seed Non-Halation Ortho plate, seven minutes exposure was given. Developed in Formosulphite-Pyro, in tank, forty-five minutes at sixty-five degrees Fahrenheit.

I generally achieve by using some large sheets of stiff binder's board that have been either painted black or covered on one side with black cloth. Each sheet is provided with a slot about one-fourth inch wide extending from the center to within a few inches of one side. By overlapping the slotted sides of two of these sheets and passing a winged nut bolt through the slot, one is provided with an adjustable "blind" that can be arranged to fit any window or door much as do the adjustable window screens in the market. Of course, two or more sets of these slotted screens are required to fill a window, depending upon its height. A door is made blind in the same way. By slightly springing the cardboards before finally tightening up the screw in the slot, enough pressure can be secured against the sides of the window or door casing to hold them in place. As light will enter through the slots where they come opposite each other, it is best to glue a strip of cloth along each side of these openings to cover them without impeding the action of the bolt that holds each pair of "blinds" in the proper position to fill the space being darkened. Where the window is easily accessible from the outside, large sheets made out of a good close texture but thin black cloth can easily be pinned around the outer casing in such a way that a slight quick pull at one corner will bring them down when light is to be admitted.

Control in development is, I find, mainly a matter of denying the overexposed portions sufficient reducer to allow of their becoming blocked up before the detail in the poorly lighted portions are brought out. It is obvious that tray development with the constant bringing, by the rocking of the tray, of a new portion of the developer into action over every part of the plate, defeats this end. The portrait films which I find, have wonderful semi-orthochromatic qualities combined with the power of overcoming halation of windows and the like as perfectly as do non-halation plates. The formula I employ most generally is used extensively by French, Swiss and German workers along similar lines. This formula for a non-alkaline developer originated in the fertile brain of a Lumiere in co-operation with Dr. Schmidth whose famous laboratories of research and scientific photography at Kusnacht near Zurich, Switzerland, I had the pleasure of visiting some fifteen years ago, through the courtesy of the Swiss aeronaut and originator of the balloon camera, Mon Spelterini.

As I have modified it and using the metric system for convenience in compounding, the formula calls for seven grams of pyro dissolved in about two hundred and fifty cubic centimeters of hot water, sixty grams of Lumiere's formosulphite dissolved in another like amount of hot water, with five cubic centimeters of a ten per cent solution of potassium bromide added for clear edges. These two solutions I pour into my 8x10 plate tank, holding two and one-fourth gallons, and fill up with water, taking care to see that the temperature of the developer stands at sixty-five degrees Fahrenheit. Develop from forty-five minutes to one hour, according to density required for papers used. This method of developing gives one a great latitude in overcoming overexposure in the high-lights, and helps to maintain the effect of uniform lighting, and gives a great working scope in assimilation of various color schemes of furniture and interior decorations.

WINDOW ILLUMINATION CONTROLLED—Using a Series V, No. 5, Bausch & Lomb Zeiss lens with color screen and Seed Non-Halation Ortho plate, an exposure of ten minutes was given to assimilate the strong lights and deep shadows. Developed in Formosulphite-Pyro, in tank, forty-five minutes at sixty-five degrees Fahrenheit.

WINDOW ILLUMINATION CONTROLLED—Using a Series IV, No. 5, Bausch & Lomb Zeiss lens and a Seed Non-Halation Ortho plate, an exposure of two hours and twenty minutes was given because of weak light. Developed in Formosulphite-Pyro, in tank, for forty-five minutes at sixty-five degrees Fahrenheit.

Formosulphite, used to replace both preservative and alkali in this developer, has the advantage of perfect keeping quality, both in powder form and in solution, while softening of the film and other troubles attending the use of caustic alkalies are avoided. A little oxalic acid can be added to the pyro solution if one desire to use this developer in the form of a stock solution. For the convenience of those so desiring and those other workers who do not use the metric system, the formula is given in the more common form below:

A:	Water, hot	16 ounces
	Pyro	1 ounce
	Oxalic acid	15 grains
B:	Water	16 ounces
	Formosulphite	4 ounces
C:	Potassium bromide solution	10 per cent

For about one hour tank development at sixty-five degrees, take four ounces of A, eight ounces of B, and two drams of C, adding water to make up to two and one-fourth gallons or nine quarts, the contents of an 8x10 Eastman plate developing tank. For tray development take two ounces of A, two ounces of B, eight ounces of water, and a few drops of bromide solution. The developing factor is six.

The matter of a uniform lighting that still maintains the natural light effect of the room having consideration, the next point is that of good color values. I always use an orthochromatic plate and frequently fortify them by using a backing preparation when the non-halation kind are not employed. Seed's Panchromatic, Seed's Ortho and Seed's Non-Halation Ortho plates are used exclusively. In addition I sometimes use a color filter, either a light or medium one as the case seems to demand. The ortho emulsion will take care of ordinary color contrasts, particularly where warm tones prevail, but occasionally one will meet with a case in which blues form an important part of the color scheme and to prevent these last from being lost, a ray screen is required. With the lighting properly controlled, with full exposure assured, and with tone values preserved, good work only requires a little judgment in the matter of selecting the right viewpoint and avoiding the inclusion of unnecessary furniture or the like so close to the camera that it appears distorted or, what is equally objectionable, cut off abruptly so that no support is shown.

Correct exposure is not near so difficult as one might imagine, it being mainly a matter of giving enough time. If one will go over his past experience in this line and try to recall an instance in which too much exposure was given he will realize that there is little danger in that respect. About all that is necessary is to be sure and give plenty of time; of course using judgment in the matter. I do not wish to imply that any exposure will be right, just so it is not too short, but I would call attention to the fact that the latitude is much greater in this class of work than in the usual run of commercial photography.

Point of view is all important. A well handled interior gives the beholder a feeling akin to that of standing within the room pictured; a poorly handled one appears as would the scene were it examined from without through an opening in the wall. In one case the beholder is satisfied with what is included,

LIGHT CONTROLLED—Using a Series V, No. 3, Bausch & Lomb Zeiss lens, stop U. S. 128 and a Seed Non-Halation Ortho plate, an exposure of fifteen minutes was given. Developed in Formosulphite-Pyro, forty-five minutes at sixty-five degrees Fahrenheit.

LIGHT FROM FRONT ONLY—Using a Series V, No. 3, Bausch & Lomb Zeiss lens, stop U. S. 128 and a Wratten & Wainright Panchromatic plate, backed, an exposure of forty-five minutes was given. Developed in Formosulphite-Pyro, in tank, forty-five minutes at sixty-five degrees Fahrenheit.

in the other, the feeling is one of being denied, of being offended by portions of heavy articles of furniture that his eyes instinctively try to furnish with a support. So important is this matter that I would hesitate to photograph any interior without being supplied with a battery of lenses that would permit me to select the point of view that I desired and then use a lens of such focal length as would give me what I wanted from that particular point.

Of course, it is not always possible to get exactly where one would wish in the matter of either distance or the direction in which the camera is pointed, but it must be remembered that one can at least place the camera on the exact spot from which the room is most frequently viewed by those visiting it, is at least always available, and of course a selection of lenses will permit the worker to include all that the beholder could see from that point without turning his head, if that is desirable. On the other hand, truth to subject makes it advisable to use as long a focal length as is allowable consistent with a satisfactory portrayal of the main or characteristic features of the room. I might add that while the position from which the room is generally entered may give the most familiar aspect, one permitting a vista into another room, onto a balcony, or through a window, sometimes is more advisable. True, such a viewpoint may not be the one the visitor first encounters but it may be the one with which he is more impressed than with the other, it may perhaps tell a more complete story concerning the room being pictured.

I recognize fully that it will be practically impossible for the reader to attempt to fit the data given concerning the several pictures sent herewith, to parallel cases, or to use these examples as guides in his own work, but giving this data will perhaps give a suggestion as to my general plan of working. These pictures, shown herewith, are not selected with the idea of showing either pretentious furnishings or artistic compositions. They are submitted as good examples of what can be achieved in the way of pleasing, natural portrayals of interiors, pictures such as meet with the approval of those who have use for and an interest in, work along this line of commercial photography. I think the average photographer will agree with me that nearly all of them present difficulties that would result in unsatisfactory results under the too frequently followed plan of setting up the camera, giving an estimated exposure and accepting what the straight development of the plate might give. One will notice that the shadows fall naturally, that there are no dark corners lacking detail, and there is no distracting blurring from halation or offensive snowiness from forced development of brilliantly lighted portions. At the same time there is a degree of contrast that avoids flatness; and, while halation is present, there is hardly any more than enough to seem natural and suggest the strong light that the eye would meet in looking at the scene itself.

When in addition to this painter's sense or feeling our artist begins to see things in nature that we do not, and place upon canvas what he alone sees, his picture is still more increased in value. He becomes an interpreter of hidden beauty, a revealer of unknown truths, a translator of an unwritten language.—John C. Van Dyke.

A Dry-Finger Method

By Cecil V. Ashbaugh

With an Illustration by the Author

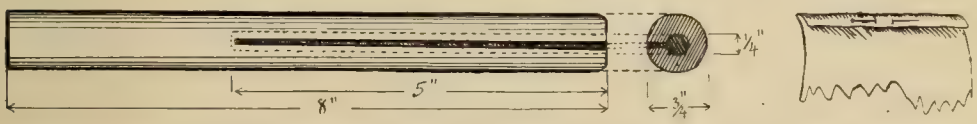
Having profited to no small extent by the many hints of value to the craft so generously bestowed in the articles by others, I submit the following in the hope that some one may thereby be given a suggestion that, if not just the one that is wanted, may take him a step farther in the attainment of his purpose.

Films, rolls especially, have had my preference for the last five or six years; not a few of them have been my own, but the major portion have been those developed and printed for others.

To develop a long roll by the usual method, i. e., by holding its ends as firmly as their slippery nature will allow, and drawing it back and forth through a tray of developer, seems to me an unnecessarily arduous business, to say nothing of fixing it in the same manner, as I have often done.

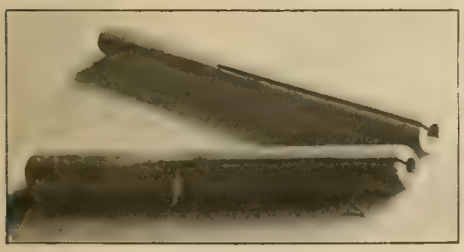
I am a believer in dilute developer for underexposure, which is only another name for the average snapshot, and this adds ages (?) to the task. Quite naturally one seeks for means whereby he may shorten the process, especially when ten or fifteen films are not infrequently to be developed in afterwork hours.

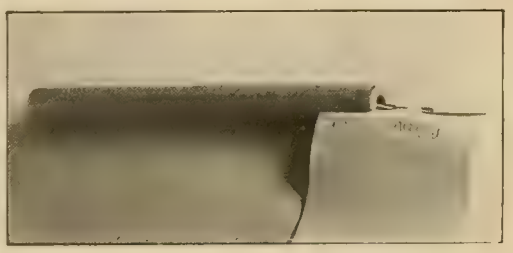
Here then, is my own method, adopted after experimenting rejecting. I take round, light dowel wood, three-fourths inch in diameter cut into about eight-inch lengths. In one end of each is bored a hole, one-fourth inch in diameter and five inches deep, after which a saw-cut slot is made in one



side, through to and running the full length of the hole. These sticks are made very smooth and then soaked in boiling paraffine.

The depth of this five-inch hole will accommodate most any roll film used. An ordinary clear glass, wide mouth fruit jar holding one quart, is filled with developer to sufficient depth to cover when standing on its edge, the size film



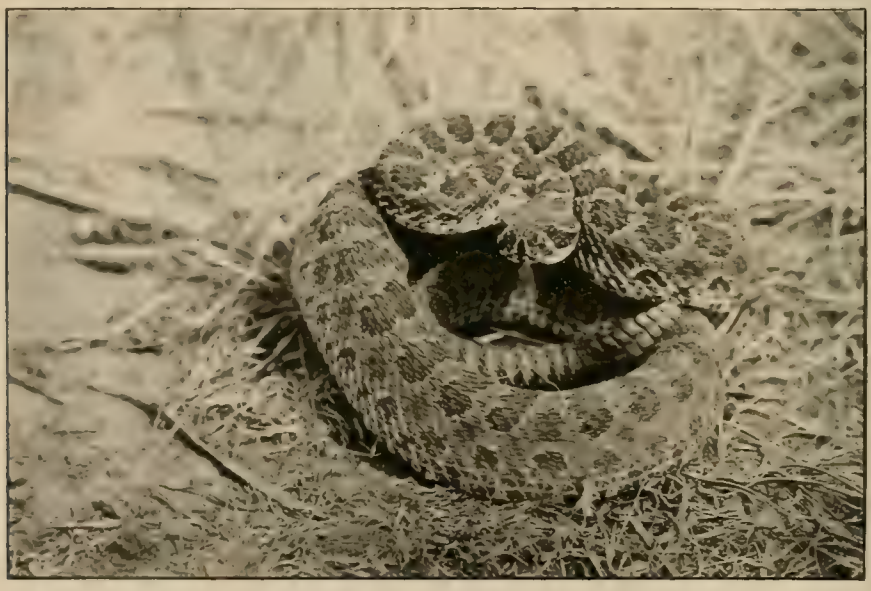


to be developed. Any developer recommended for films may be used, but the following formula I have found very satisfactory:

A:	Potassium metabisulphite	60 grains
	Sodium sulphite, dry	1 ounce
	Pyro	120 grains
	Water, cold to make	8 ounces
B:	Sodium carbonate	1 ounce
	Potassium bromide	30 grains
	Water, hot, not boiling, to make	8 ounces

To develop, add one and one-half ounces each of A and B to sixteen ounces of water. Use at a temperature of sixty-eight to seventy degrees Fahrenheit. The amount indicated, used in the quart jar, will cover any film up to four inches in width.

After stripping the paper from one end, the film is folded over just far enough to allow the insertion of an ordinary pin through the two thicknesses. This fold is slipped into the hole in the end of the stick, allowing the film to slide down the slot till flush with the end. Then, by twisting the stick, the film is rewound upon it in the same direction as it was upon the spool, the paper being stripped back as the film is wound. The operation involving the fold and pin is repeated at the other end of the film, using another of the sticks. As this is done I wind the film back on its stick half a turn and with a soft pencil write any data, such as owner's name, or number of prints wanted. As this part of the film is generally unexposed, this pencil writing shows plainly after fixing and washing. The winding is then continued in a reverse direction to that of the spool; and when all is wound on this last stick except the end caught in the other, I slip the two into the jar of developer and release. The



READY FOR BUSINESS—Bright sun, Bausch & Lomb Zeiss Protar, back combination only, f-16 stop, one-half second exposure on Hammer Ortho plate, Solio print.

SHERWOOD, OREGON—Bright sun, Goerz Dagor lens, three times filter, f-8 stop, one second exposure on Cramer Medium Iso plate, Cyko print.

spring created by the reverse winding will cause the film to spin rapidly through the developer, brushing off any air bells and wetting the surface evenly all over and at once.

Then, by grasping the upper ends of the sticks, I wind the film from one to the other, rapidly at first or until thoroughly soaked, after which a slow, gentle winding is sufficient. As I use the time and temperature method and dilute my developer, about six minutes gives me the right density for normal printing.

With the exception of the continuous stirring, fixing in a second jar containing the hypo, is accomplished in the same manner, and I often use the same jar for washing the film after pouring out the hypo, by simply setting it under the tap. If a large batch of films is being handled, I fasten both ends of each film to one stick, to prevent rolling tight, and place all in the washing vat.

Working in this way one's fingers do not come in contact with the wet film during developing or fixing, and this prevents many finger stains, as well as stained fingers. For me, this method has done away with the occasional uneven or streaky films of the past, caused by the extra warmth of the developer dripping from the fingers. In developing film pack I use tongs of a non-corrosive metal and a wool swab, in that way avoiding touching them with my fingers.

When printing I adhere to the same theory, namely that handling the prints with warm fingers does not in any way add to their appearance. By using the metal tongs and the wool swab referred to above, I find no difficulty in manipulation, and with experience, one gets very deft in lifting the print from one bath to another. Having dry hands with which to load the printing frame, cut the paper, or do other things sometimes necessary while printing, should certainly appeal to anyone.

Commercial Lantern Slides

By Frank B. Howe

Illustrations by Leading Slide Makers

Second only in rapidity to the development of the motion picture industry itself, has been the growth and change of that business' leading partner, the lantern slide. The metamorphosis through which the slide has passed during the past decade has been almost complete and today the name "lantern slide" embraces a far wider field than it did a generation ago.

Until about 1906 the only variety of slide in use was the familiar "picture slide"; that is, a slide made by contact from a negative of some scene, portrait, or other customary photographic subject. The commercial use of lantern slides at that time extended to lectures, travelogues, and home entertainment, and the firms devoted to lantern slide making were few and far between. The song slide was coming into vogue, particularly in the vaudeville theatres, and the arrival of the motion picture gave it a broader scope. Song slide sets consisted of sixteen pictorial slides, generally hand-colored, which were thrown on the screen to illustrate the song being sung by the soloist. Shortly afterwards the practice of announcing coming acts by means of slides became general with the vaudeville houses and with the scattered picture theatres. As a quick and logical development from this came the advertising slide, the contemporary of the advertising curtain then in general use.

By 1909 the motion picture business was well enough established to be a factor, and the development of present day slides may be said to date from that time. The advertising slide provided a good field for the advertiser and a lucrative one for the theatre manager, and the demand arose for slides of this nature. The black background slide was then introduced and its rise to popularity was rapid. At first a rude design with lettering around seemed to suffice, but quickly better work was demanded; and, in its full development, the lantern slide was designed by experienced artists and show-card experts, photographed by good photographers and colored by true artists.

The opportunities presented caused the formation of a great number of new slide companies, many of which, alas, were incompetent in the extreme,

THEATRE ANNOUNCEMENT SLIDES — By KANSAS CITY SLIDE CO.

ADVANCE AND PLAYER SLIDES By NOVELTY SLIDE CO.

and to these is largely due the disrepute into which advertising slides fell. Cut-throat prices, even as low as ten cents for a made-to-order hand-colored slide, brought quality so low that exhibitors refused to run them because of the complaints of their patrons. To this was added the operator's carelessness in projecting the slides, a condition which exists today as shown by finger-marks and other dirt, and one that the patrons naturally resent. Along with these came the theatre announcement slides, and these last have survived the downfall of the former mainly because of the impossibility of entirely doing away with them.

It is the practice of film manufacturers to supply the theatres with slides announcing coming attractions. Such slides give the name of the picture, its stars, matter having advertising value, perhaps a scene from the picture, and a blank for the exhibitor to write in the date he is to show the film. Such slides are used over and over, the theatres in turn simply washing off the previous exhibitor's inked-in date and substituting their own. While these slides are by far the most popular, they too often lack quality. The lettering is generally so fancy as to be almost unreadable and the photography is frequently so poor as to make

THE FIRST IS A NOVELTY—THE PORTRAIT OF THE ADVERTISER BEING INSERTED ... PROPER BLANK SPACE SHOWN IN THE FIGURE. THE NEXT TWO ARE COMBINATION ANNOUNCEMENT AND ADVERTISING SLIDES. THE LOWER THREE ARE STRAIGHT ADVERTISING SLIDES By KANSAS CITY SLIDE CO.

the picture used suggest Cubist art. There is indication of these slides suffering a decline in popularity, due entirely to this condition. The advance slide, however, can hardly be entirely done away with on account of its value to the theatre in advertising coming attractions to the very people they wish to reach.

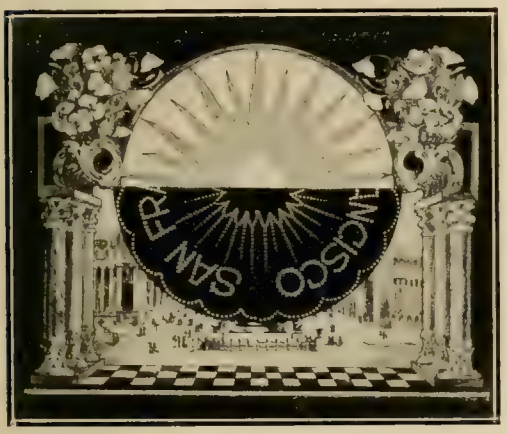
Closely associated with these last are the photo-player slides that serve to announce the coming of a particular star, the star being featured above the picture itself. These have also fallen into disuse, again because of poor work in their production. Crude wording had much to do with this condition; and, poor photography made the portrait of the player, the principal part, so hopeless that the slide lacked commercial value.

PHOTOPLAYER ADVANCE SLIDES By FRANK B. HOWE

The use of announcement and advance slides will never be discontinued as they are a necessity. But to bring them back to their full popularity, there must be a radical change from present conditions. Prices must go up. Then quality will follow. Once quality is secured, popularity will return. At present, slides of this type, and colored at that, can be secured at nine cents. Nothing less than fifteen cents wholesale can be sufficient to warrant a raise in quality. Two companies are now holding to this price, or very near it. Their slides are getting better, because, with such a price, they can afford to employ good photographers and designers. The great fault generally is the poor quality of the illustrations used on the slides despite the fact that the originals are good black and white prints with glossy finish, ideal for copying. To show that good work is not impractical, examine the reproduction of the advance slide of Miss Agnes Vernon shown above. This was copied from an original in sepia on buff stock with linen finish. If good results can be secured with photographs so illy suited for reproduction, is it impossible to hope for better results from pictures made especially for copying purposes? The most hopeful slides in this line at the present time are the ones put out by the Triangle Film Corporation and the Orpheum Circuit. If more producers would follow the lead of these two leaders in their respective lines, the advance slide would quickly

come back into its own. I do not mean to say that these slides are the only good ones to be seen, but their consistency serves to prove our case.

It might be well to briefly mention the other types of slides. There are mica slides, brass slides, and the common scratch slides made by opaquing clear glass and scratching the lettering thereon. Typewritten slides, used to some extent, are made by inserting a piece of clear gelatine between two sheets of carbon paper in the typewriter, typeing the wording and then mounting between two cover glasses in the usual way. All these are but minor variations, however, and do not materially affect the trend of slide development.



A VITASLIDE—AS INSERTED

Last fall, when in San Francisco, at the suggestion of Mr. Kaiser of Hirsch & Kaiser, I had the pleasure of visiting the plant of the Vitaslide Company and, through the kindness of Mr. Breck, inspecting some slides made on a new principle which may have a strong effect on future advertising slide work. In these, by a combination of expansion and the action of gravity within the slide itself, movement is effected. We saw a row of owls rise, and in stately fashion, alight on the limb of a tree, and many other similar effects were produced with slides in which advertising matter was placed. Such slides would be valuable as a means of attracting attention and getting the advertising part read, if displayed in a merchant's window or other similar place, and they have the additional advantage of being automatic in action, making them operator-proof, a decided benefit in these days. Removed from the lantern, to its original position, so that the slide is no more trouble to project and care for than the ordinary one. At the same time I was shown a new projector which, by the use of a motor, projected a series of slides without any outside assistance, the slide being automatically changed at regular intervals. Something in that line seems to be the future of the advertising slide. Probably in the smaller suburban theatres, advertising slides will always maintain to some extent; but in the larger metropolitan theatres, advertising slides are manifestly impossible. With such a projector as this, however, placed in a store window, the possibilities are unlimited.

A VITASLIDE—MOTION COMPLETED

We should also mention another novelty, one not yet adapted to advertising perhaps, but nevertheless one that has great possibilities as an interest-creating picture. These are the spectograph slides manufactured by the Florida Photographic Concern of Fort Pierce, Florida. The colors are photographed directly by the Paget process and in their Color-Changing Chameleon slide, which we have seen, there is a gradual and natural change from green to reddish-brown that is very pleasing and interesting.

As to the photoplayer slide, I look for its return to general use; in fact, I feel so sure on this point that I am making nothing else but photoplayer slides myself. What we need in this line is more simple design, less wording, and better photography. If the theatre patron is told that the star of the next night's attraction is the "foremost star of the screen" and the following night learns that another is the "leading screen star", and this is repeated at subsequent visits, he loses confidence and the advertising value of player slides is lost. There is really no advertising value in excess wording. It is far better to allow the star to bid for popularity on his or her own merits. All that the patron wants to know is the name of the star, the title of the picture and the date it is to be shown. Good photography, especially in the principal part, the portrayal of the star, is as essential in these slides as it was in the announcement and advance slides. The few player slides herewith reproduced will show my ideas in this line far better than I can explain them. The fact that these sell at thirty cents each, in black and white, proves, I think, that exhibitors will pay a good price if they can get good slides.

In conclusion, I can do no better than to quote the Kansas City Slide Company. They have, it would seem, summed the whole matter up in a paragraph in their catalogues when they say: "Price is the main stock in trade of a good many slide manufacturers, as well as slide users. Slide manufacturers who make the price the whole consideration liken themselves to a seething, boiling, bubbling pot that bubbles and spouts until it grows dry and then they either fade away into the landscape or realize that best quality cannot be made at a cheap price. Time has taught the world that in order to stay in business the price must be in harmony with the quality. Poor, cheap slides are hurting the business. Time will change this, as the tendency is now to give more attention to the matter of better slides."

Let us hope that such is the case.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

A SAFE AND PRACTICAL DEVELOPING LIGHT: Take a piece of cardboard 14x20 inches in size, white preferred, and bend it the long way until the two ends are eight inches apart, connecting them in this position by pasting two thicknesses of orange tissue across this opening. Next cut two or three inverted V-shaped openings in the bottom at the sides and back. This arrangement set over an ordinary low kerosene lamp gives a good safe light for loading printing frames and developing gaslight papers.—A. N. Brown, Iowa.

INK FOR LABELING BOTTLES: In a small bottle place an ounce and a quarter of methylated alcohol, add a half ounce of shellac, and when this last is dissolved, immerse the bottle in hot water until the solution is warm. Then add slowly, while stirring rapidly, to a solution composed of one hundred and fifty grains of borax dissolved in two ounces of water. Finally, add coloring matter to suit, four or five grains of methyl violet being satisfactory, and dissolving well upon shaking. This makes a very fine waterproof ink for writing the labels upon bottles and for other purposes about the dark room.—W. E. R., Tennessee.

STRONG ENLARGEMENTS FROM FLAT NEGATIVES: Give a full exposure and then develop the print strongly without regard to the high-lights, getting the shadows as dark as possible. Fix and wash in the regular manner, then immerse in the following:

Potassium iodide	60 grains
Iodine	6 grains
Water	20 ounces

The whites of the print will gradually become dark blue when it should be placed in the ordinary fixing bath where the whites clear. Washing follows. The solution keeps well and if the first effect is not enough, repeat the operation. —M. S. S., New York.

CLEARING BROMIDE AND GASLIGHT PRINTS: The following reducer is an excellent solution to keep on hand for slightly reducing and clearing up prints, clearing white edges and vignettes and the like. It is made up as follows:

Iodide of potassium	40 grains
Iodine	4 grains
Water	12 ounces

This is a stock solution that keeps indefinitely. It should be used diluted until about the color of sherry wine. For clearing up edges of prints apply with a tuft of cotton and for local reduction it may be used in the same way, followed by fixing. For clearing up a print all over, give a rapid immersion in the solution

and follow by application of fixing bath and the usual washing. A little confidence and experience gained with some waste prints will enable one to use this solution to great advantage on prints that require only a little clearing up to make them satisfactory.—T. C. F., Illinois.

STAINLESS PYRO DEVELOPER: Frobisher's formula for a two solution pyro developer is as follows:

No. 1:	Water	12 ounces
	Sodium sulphite, crystals	3 ounces
	Ammonium bromide	20 grains
	Citric Acid	60 grains
	Sulphuric acid	1 ounce
	Pyro	1 ounce
No. 2:	Water	12 ounces
	Sodium carbonate, crystals	4 ounces

For normal exposure take one-half dram of each solution to every ounce of water. This gives brilliant negatives for hand camera exposures, instantaneous work and the like and will not stain plates, films or fingers. It also possesses good keeping quality.—T. E. P., California.

USING DRY PYRO: Professor Eder's formula is an excellent one and reads as follows: In ten ounces of water dissolve one ounce of sodium sulphite crystals; add one-half ounce of sodium carbonate crystals, and then make up to sixteen ounces by adding water. For normal exposures take two and one-half grains of dry pyro to each ounce of the above solution required for use.—T. E. P., California.

COPYING CRACKED SURFACED PRINTS: One occasionally has a print to copy that presents an uneven surface. There are either small cracks in the original glossy surface or that same glossy surface has been worn away in spots, making it difficult to secure a copy negative of even density. Such prints, should be soaked in water, to which has been added a little glycerine, until wet through, then squeegeed onto a clean glass plate and copied, through the glass of course, while still wet.—B. N. M., Kansas.

MR. FAIRMAN'S FAVORITE DEVELOPER: A developer that will keep for years without deterioration is made up as follows:

No. 1:	Water	6 ounces
	Sulphuric acid, added drop by drop	3 drops
	Pyro	1 ounce
No. 2:	Water	32 ounces
	Carbonate of soda, crystals	192 grains
	Sulphite of soda, crystals	1½ ounces

For normal exposures take one dram of No. 1, four ounces of No. 2, and three ounces of water, adding a few drops of a ten per cent solution of bromide of potassium if overexposure is feared. This developer was originally put forward as particularly suited for light draperies, but good results with these depends somewhat upon "the man behind the gun".—T. E. P., California.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, February, 1917 No. 2

What a Photographic Magazine Should Be

If our readers only understood how helpful and inspiring they could be by writing an occasional letter to the editor telling him what features or what articles they liked, and which ones they did not care for, the work of trying to give them what they want would be easier and more enjoyable. We do get quite a number of letters from week to week, in which the writers express their appreciation in more or less strong terms, but few of them are specific in even their praise. This is no doubt due to a fear that they may be understood as trying to tell us how the magazine should be conducted. This is a mistaken idea. Any reader can write in and tell us just what he, personally, likes best and what interests him least and feel sure that we understand it as only an expression of his personal likes and dislikes in the matter. With a few such letters each week it would be much easier for us to guess what kind of material could be used in making up the magazine so that we might stand the best chance of pleasing the largest number of readers.

Once in a great while, someone, to whom we have sent a sample copy, is kind enough to write and explain that they fear our magazine is a little too far advanced for them, as he is only a beginner. This is the wrong way of looking at the matter. An instructor that does not keep in advance of his pupils does not advance them very far. In addition, elementary instruction in photography is so well provided by a number of inexpensive and easily available handbooks that it would seem out of place for a magazine to concern itself therewith to any great extent. Again, an occasional suggestion is made that we do not devote enough space to pictorial work and its production. This again is the function of the books more than of the magazines. There is no "method" or "process" to pictorial photography, and consequently there is hardly anything new in their application or improvements therein. But there does remain, even after we extend the list of topics best dealt with in book form, much that the books do not cover; and these, it would seem, make up the field in which the magazine should put forth its efforts. These comprise the means and methods of individual workers in the various lines of photographic work, the new methods that individual workers may hit upon as well as the improvements upon old methods that they may devise. The discussion of photographic subjects, if rightly carried on, brings forth ideas and suggestions that have value; and, not infrequently, criticism of even widely accepted theories brings forth a measure of light that is not without value.

But that our heading may be justified, let us say that a photographic magazine, as we see it, should be as helpful as it can, should afford the reader, as far as possible, that which he cannot readily obtain from other sources, and it should aim to encourage him forward to more advanced stages in his photo-

graphic career. At the same time, the preferences of the readers should be considered, but this last necessitates an occasional expression of opinion from them, something with which the editor is entirely too infrequently honored.

The Hood Method Available

As our readers may remember, there appeared, in our May, 1913, issue, an article by William Hood dealing with the use of ray screens or filters in multiple to prevent overexposure of the high lights and to avoid, to any desired extent, the clear glass shadows common to negatives of subjects having considerable contrast, locally known as "The Hood Method". Mr. Hood wishes it made known that this method, since improved and covered by United States Letters Patent No. 1,182,485, issued May ninth, 1916, is open to the free use of everybody desirous of using the same for other than commercial purposes. Prompt attention will be given letters concerning the commercial use of the method if addressed to, William Hood, 957 Leavenworth Street, San Francisco, California.

A Fiction Among Futurists

There are many odd ways of undervaluing education. Just as a doting world loves to think that a little child, "without any instruction whatever", has actually accomplished some marvel of mature skill; so, too, it relishes the romantic fiction that a man who is thoroughly master of his art will express himself in incredibly childish and crude fashion. It has been said by many, and even believed by a few, that the prophets of extremist art are often persons highly competent in the practice of accepted methods. This would be interesting if it were true, but it is not true. The fact is, not one man of really extraordinary and universally acknowledged power in art has ever joined the weird brothers. A sculptor was describing a portrait seen in the studio of a "neo-Futurist". The subject was a noted bridge builder. At left was a gross purple outline of an arch, in the center a jagged pseudo-geometrical shape in emerald green, at right two flattened red circles joined by a dark line. Other than that line, which was intended to suggest "the bar of Michelangelo", there was no vestige of anything so commonplace as form or feature. "He declared that this was the way he felt the builder of bridges", explained the sculptor, adding reflectively, "When I see Sargent doing that sort of thing, I shall begin to think there's something in it!"

* * * * * * *

In art as in other fields, many are called and few are chosen. Few compel instant attention because of extraordinary power. Despairing of legitimate distinction, yet avid for distinction of some sort, many of the unchosen take strange ways to elect themselves.—*The American Magazine of Art.*

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Criticisms and Color Perception

One of the most difficult things to judge is the truth of the color rendering in a color photograph when the original is not available for comparison, and even when such comparison is possible it is by no means certain that different critics will agree. Various things contribute to these difficulties, and it is just as well to consider some of these items before venturing on too definite a criticism, or before accepting another's opinion.

At first sight it would seem quite easy to determine the truth or falsity of the photographic copy when it can be compared side by side with the original. It is, in fact, quite easy if the original is itself only a representation of nature, and not nature itself. Any person not color-blind is competent to determine whether a photographic copy of, say, a water-color drawing is correct or not; but the same person would be no more competent to judge the truth of a photograph direct from nature than he would the truth of the drawing, unless he happened to possess the knowledge of the trained artist with regard to the translation of color. This is just where the trouble comes in, for while a painting is capable of being reproduced in fac-simile, nature can only be translated. More than this, it often requires transposing as well, its color scheme being set in far too high a key for the medium that is to be employed; but neither translation nor transposing is possible to, nor can be judged by, anyone not sufficiently trained to be able to perceive and recognize the true colors of nature. It is one thing to recognize a color seen in a drawing, but quite another to do the same thing in the case of nature, or even a "still life" subject, and this is naturally a fundamental difficulty in the way of the would-be critic of color photographs.

It is fairly well known that true perception of color in nature is to a very large extent a matter of education. Give the uneducated pupil a full complement of pigments and materials, set him before a natural object, and then he will probably be unable to match correctly any one of the natural colors, while the attempt to deal with several will almost certainly produce a fantastic travesty. The fact is, he has not yet learned to see color, and this accomplishment will take him some time to acquire. Very long practice will be necessary before he masters it, and so, in the meantime, he is a person whose ability to perceive color is steadily improving and therefore changing. This can be seen in his work; but whether the change is rapid or slow depends entirely on the individual. A natural consequence is that when he acts as a critic of a color representation his opinion changes as his experience grows, and the production that he will approve in early days he will condemn later. Progress in color perception is, however, not confined to individuals; it is evidenced in the human race as a whole. There is evidence enough to the effect that in earlier ages man had a smaller color appreciation than he has now; that is to say, he could not see so many colors. According to Mr. Gladstone, Homer was color-blind, because he described the sea as wine-colored. This was poor logic, because the same data might be held to prove that Homer's wine was sea-green in color, but there is more evidence to the effect that in and about his age men generally were more or less color-blind; and in any case it is remarkable that they mentioned very few colors in their writings, and used so few in their decorative work, so far as we can judge from the scanty remnants that now exist. The subject is a difficult one, but there is now more or less general agreement that the power of perceiving color is one that man has only acquired gradually, and a natural consequence of this is the undoubted fact that now different individuals have reached different stages in the process of development. The most backward are probably what we call color-blind, while

the more advanced almost all differ in the degree of their advancement. Hence it follows inevitably that as critics of color rendering they differ also, so that a result that may be quite satisfactory to one may be distasteful to another.

There is yet another factor that affects criticism, and that is the age of the critic. Assuming that at some time he reaches the highest modern degree of proficiency in color perception, he will be fairly certain to lose some of it later. Two things are likely to happen to his eyes: The lens will tend to become yellowed or discolored, and also the materials of the eye will be less perfectly transparent. Color then tends to become degraded, partly by absorption in the discolored lens, and partly by scattered light within the eye. His ability to distinguish subtle differences of color becomes less acute, while the colors themselves will appear to change. If we take all these various points into consideration, it becomes very evident that the task of comparing an artificial color representation of nature with nature itself is likely to lead to very different results with different people, if the absolute truth of the color rendering is the point to be judged. The lesson seems to be that this is not the important point to be considered, if a fair judgment is to be arrived at. The question should not be, Are the colors true to the original natural colors in the opinion of any one individual? but rather, Are they within the range of possibility? Further, it should be considered whether the colors are numerous enough. That is to say, is a predominantly green subject, such as the sea, represented in shades of green alone, as the tyro at painting will be likely to represent it, or does the result include the browns, blues, purples, etc., that are always present, though only visible to the trained eye? In respect to such details the untrained eye is temporarily color-blind, while some color processes appear to be permanently so. Then, again, there is the important question whether the colors are as harmonious as they always are in nature, but very often are not in representations of nature. Some color processes fail lamentably in this respect, as everyone knows, and a common cause of the failure seems to be the inadequacy of the process in respect to some one particular color.

An interesting point suggests itself in regard to the subject of color perception. If this is a faculty that increases with the education of the individual and of the race as well, how near to finality have we reached? In connection with this there is a matter concerning the spectrum that does not seem as yet to have been satisfactorily explained. The spectrum shows a long series of colors, each of which is primary in the sense that it cannot be dissected into components. But all except three of the colors can be matched by mixing other spectral colors, and the exceptional three, called primaries, are enough to reproduce all the rest. For example, spectral green and violet will combine to match spectral blue, but the green and violet cannot be matched any way. The question at once presents itself: Is this a true match, or is it only defective color perception that allows us to take it for a match? If color perception is still developing, possibly future generations will have to revise color theory very considerably, while modern color photographs will look to them even less true to nature than they do to us now. If, however, they only show the three qualities by which I have suggested they can alone be fairly judged, they will perhaps be allowed to pass as pictures.—C. Welborne Piper, in *British Journal of Photography.*

Working Up Negatives for Subsequent Enlarging

Anyone who has tried to make an enlargement from a negative with matt varnish and stump work on the back of it, knows that it is very far from being successful as a rule. The grain shows up, the slightest inequalities in the varnish reveal themselves, and a plate that gives a good contact print may be quite useless for any other purpose. Norman Deck, writing in the *Australasian Photo-Review,* describes his method of avoiding this by the use of fine ground-glass on which the work is done, which glass is then bound up in contact with the negative.

The cheapest and best way to get the ground-glass is to make it, using for the purpose an exceedingly fine grade of carborundum powder, known as 3F. When two pieces of clean glass are rubbed together with some of this powder between them, and moistened with water, it will be found that in four to five minutes two absolutely flawless screens of a very fine grain are produced, with sufficient tooth to take any amount of work. They also make most per-

fect focussing screens. The usual emery powder or knife polish is much too coarse for this purpose. These ground-glasses are held in contact with the negative which is to be modified, and are worked up with Coute crayon sauce, or with lead-pencil.

Usually it is best to have the ground-glass in contact with the back of the negative, ground surface outwards. In this case there are two thicknesses of glass between the actual film of the negative and the ground surface, so that when enlarging, if the film of the negative is accurately focussed, the ground surface is out of focus and the grain diffused, provided, of course, an enlarging lens of fairly large aperture is used.

Occasionally, however, when the negative which is undergoing treatment needs emphasis in the nature of sharp lines, this distance is too great, and then, when working up, the ground-glass should be placed in contact with the film of the negative with the ground surface facing the operator. When the work is finished, the positions of the negative and the ground-glass are simply transposed. When this is done only one thickness of glass will separate the work from the actual film, and the work will be sharper in its effect.

If preferred, the ground-glass may be bound up with the negative like a lantern slide. Ground-glass has a distinct advantage over matt varnish, as it is not liable like the latter to get scratched and spoilt; and if the work has been overdone it can be washed off or rubbed out with a pencil eraser and be redone. When the negative and ground-glass are inserted in the enlarging lantern and the film is focussed up, it will be found that with very thin negatives the resulting enlargement will show a slight grain, but the grain will be much less noticeable than that produced by matt varnish; on fairly dense negatives the grain will barely show at all. If, however, black chiffon is placed over the enlarging lens, the grain will be cut out absolutely, even with the thinnest of negatives. The chiffon also prevents any retouching from showing, and is an advantage in all respects.

The ground-glass also considerably softens the contrasts of the negative, and needs a greatly increased exposure. When the grade of carborundum mentioned above is used, the exposure must be increased six times. The softening of contrasts may be an advantage; but when it is not wanted, it can be got over by varnishing the worked-up glass with ordinary negative varnish. The varnish not only fixes the crayon work, so that it will not rub off, but also makes the ground-glass more transparent; after varnishing, the exposure is only increased one and a half times instead of six times.

Stump work with black crayon powder, when the negative is to be enlarged, should be twice as deep on the ground-glass as is needed for contact printing. For some obscure reason it has only half the effect one would expect from visual examination.—*Photography.*

Intensification With Mercury, Iodo-Chloride and Notes on Other Formulæ

In a recent article, The Properties of Iodide of Mercury and their Application in the Preparation of Intensifying Solutions, it was pointed out that a solution of mercuric iodide in mercuric chloride appeared to have certain advantages as a bleacher in place of the usual solution of plain mercuric chloride. Some experiments I have made in this direction seem to show that these advantages are decided ones, especially if we use a stronger solution of the iodide. The bleacher described in the article referred to was prepared by adding a solution of potassium iodide to one of mercuric iodide until the precipitate formed just ceased to be dissolved. If this operation is performed in the cold or at normal temperature, very little iodide is required, and the final result only contains about one part of mercuric iodide to fifty of mercuric chloride, as stated in the article. If we heat the solution these proportions change to something like one to ten, so that we get about five times as much mercuric iodide in the solution.

The following formula can be used:

A: Hot water.....20 ounces
Mercuric chloride..... 1 ounce
B: Cold water ..... 5 ounces
Potassium iodide .....45 grains

Dissolve the mercuric chloride, and when dissolution is complete add solution B, not all at once, but in small quantities, say a drachm or so at a time, shaking after each addition, until the solution becomes clear, and, if necessary, heating further. If B is added all at once, a large amount of precipitate is formed which takes some time to dissolve. When perfectly clear, the solution is allowed to cool, and when it reaches nor-

mal temperature a little red precipitate will reappear, which must be removed by filtering. Care should be taken not to inhale the steam from the hot chloride solution.

By dissolving mercuric iodide in mercuric chloride we get mercuric iodo-chloride, and five parts of the iodide should be capable of combining with six of the chloride. The iodo-chloride is, however, not very soluble, so the attempt to use these proportions gives a very large precipitate on cooling the solution. If we prepare the solution by adding potassium iodide to mercuric chloride the corresponding weights of each ingredient will be two of iodide to five of the chloride; but as then about three-quarters of the iodide will go into the precipitate, it is useless to use more than one part iodide to ten of mercuric chloride. It does not seem to make any difference in the result whether we dissolve mercuric iodide straight away in mercury chloride, or produce the iodo-chloride by adding potassium iodide to mercuric chloride. I think it is possible to get more iodide into solution by the first method, but it is far more troublesome than the second method. The chemical difference in the results cannot be very material, as, while in the first case we get a solution containing mercuric iodo-chloride and mercuric chloride, in the second case we get the same two ingredients together with a little mercury-potassium-chloride

The red precipitate thrown down in the cool solution consists of small red crystals, apparently of mercuric-iodo-chloride, mixed with others which may be mercuric iodide, and some lighter crystals of mercurous-iodo-chloride. The first mentioned crystals are soluble to some slight extent in water, and such a solution will act as a bleacher, though a very slow one. The iodo-chloride is more soluble in mercuric chloride, but obviously the total solubility must depend both on the amount of chloride present and the degree of dilution. I cannot give exact figures, but in practice one part by weight of potassium iodide to ten of mercury chloride will give a solution showing a slight excess of the iodo-chloride salt, and, therefore, one that is saturated.

A point worth noting is that while the addition of potassium iodide to mercuric chloride solution gives mercury iodo-chloride in the first stages, if we add mercury chloride to potassium iodide solution we get mercury potassium iodide. This latter salt is the one commonly relied on for intensification with mercury iodide, but it is very curious that nearly all the published formulæ prescribe the addition of the ingredients in the wrong order. The simplest and most direct way of getting the ordinary solution of mercury potassium iodide is to take some iodide solution and add to it mercury chloride solution until a permanent precipitate just begins to be formed. We can then clear the solution by filtering, or by adding a few drops more iodide, or a little hypo or sulphite. If we proceed in the opposite way, as usually advised, we begin by forming the iodo-chloride compound, which is not wanted, and some photographers have been known to make mistakes and stop at this stage in error.

Another point worth noting in regard to the mercury iodide formulæ usually given is that several of them contain an excess of either hypo or sulphite, the result being that the mercuric iodide they contain is decomposed to mercurous iodide, a green insoluble compound that is useless for intensification purposes. While experimenting with various formulæ I came across some commercial mixtures that were full of the mercurous compound, while some of the published formulæ when made up showed a heavy precipitate in a few hours. The admixture of hypo or sulphite with mercuric iodide seems in any case very inadvisable, excepting in very minute proportions, and for the purpose of getting a clear solution potassium iodide is much safer. So far as the final results of intensification are concerned, none of the usual iodide formulæ are at all satisfactory in my hands. More often than not the result is a spoiled negative, but so far I have found no objections to the use of the mercury-iodo-chloride formulæ other than those which apply generally to the use of mercury. When blackened with ammonia, the greater density which it seems to give as compared with mercury chloride appears to be due partly to a diminished loss of material in the blackening bath and partly, no doubt, to the greater density of the iodide compounds produced. With sulphite there is little if any increase in density over that given by chloride alone, but with either mercury or sulphite the resulting image is blacker and cleaner looking.—C. Welborne Piper in *British Journal of Photography*.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Trimming the Print

There are a lot of our readers who send us occasional batches of prints with the request that we run over them and make a few comments or criticisms. This we are always glad to do and nearly always have the pleasure of hearing from the sender with thanks and words of appreciation. However, one such friend wrote back last week and complained that we were seemingly a little obsessed with the idea that the proper way to improve a print was to trim away a good portion. The truth of the matter is that the average beginner finds it practically impossible to make a picture with the average camera that cannot be improved by trimming, mainly because the lens is not of very long focus. If this average worker would use a lens of longer focus the lens itself would do the trimming. The camera makers are not to blame; the lenses they furnish being no doubt the ones most generally useful; but for purely landscape or pictorial work a longer focus would be better. In addition, a large number of camera users fail to realize that a picture should not have divided interest and they also overlook the fact that unnecessary material at the edges simply detract from the effectiveness of the picture itself. Trimming is generally done to get rid of material not wanted, to remove a second or conflicting point of interest, or to take the principal point of interest away from the center of the picture. The reader mentioned above as complaining of our penchant for trimming, felt aggrieved because we suggested the trimming away of a very pretty cloud effect that graced the upper half of a wave picture. As it was, the clouds prevented the beholder from concentrating his attention on the waves, the latter being really the main point of interest. Another of his pictures, a roadway scene, required trimming from the top because that space was filled with a meaningless jumble of foliage that brought the point of interest, the visual termination of the roadway, directly in the center of the picture space. And this reminds me that some of these readers who send in prints have a sort of natural appreciation for subjects that seem complete and alone, while others seem to invariably select scenes having at least two nearly equal centers of interest. Still others have a bad habit of selecting such views that their pictures always seem incomplete, as strips cut out of larger pictures. I do not know why this is, but it seems as if one worker should trim away a good part of every print he turns out, while another invariably makes pictures that seem to lack something. One of the former recently decided he would try a long focus lens and found it an almost complete remedy for his failing. But the use of a shorter focus lens would not help the worker who made the other kind of pictures because the fault lies in his selection of views that contain strong lines running across the picture space. These, ending abruptly where the edge of the print cuts them off, gives one a feeling of the picture being incomplete, of the interest being denied by the boundaries of the print.

A Narrower Angle

We have been coaching an amateur friend, doing it in a rather spasmodic manner, it is true, for the past few months. He seems to be getting along nicely except for a rather persistent inclination to get all out-doors into every negative that he makes. We have urged him to try little bits, to use a longer focus lens, to get closer to his subjects, but to no good purpose. He complains that he cannot find any of our "little bits" that compose well, that a longer focus lens simply means getting that much further away, and that getting closer to his subjects means cutting off of necessary portions of the scene. Finally, we got him to agree to a plan as follows: As soon as he had made an exposure on one of his favorite style of landscapes he was to leave the camera

standing where the exposure was made, remove the front combination of his lens, rack out the front to the proper distance, and then expose a plate on the best composition that he could find within the view embraced by the first exposure. This was done, this plan carried out, on his last excursion abroad, with the result that a number of fine pictures were secured, pictures not open to the objection that they included entirely too much subject matter. Not a few workers find great difficulty in picking out good compositions from the mass of material before the camera, and to such a trial of this plan might be well worth while. Another good idea is to carry about with one a piece of cardboard in which is cut an opening of such a size that when held at a certain distance from the eye there is embraced the same amount of view as the plate would receive were an exposure made. The margins of the card cut off all except the part being viewed and consequently there is a much better opportunity of judging of the composition and the most desirable portion to include.

Cement For Porcelain Dishes

A correspondent writes to ask how he can make a cement like that he has bought of street venders, a whitish paste that has excellent adhesive qualities when fresh. We do not know the exact formula used but it is no doubt nearly, if not the same as the following, which is very satisfactory. To six ounces of water glass (sodium silicate), add four ounces of ordinary fish-glue and one ounce of precipitated chalk, and rub into a paste. Of course a much smaller amount can be mixed up, using the same proportions. To use, rub a little over the broken surface, press into good contact and dry in a warm place.

Deterioration of Blue Print Paper

An Ohio subscriber sends us a sheet, part of a supply he has on hand, of a very fine quality of blue print paper, and asks if it has become stale because he fails to get pure whites. The paper has deteriorated through age, such paper not having very good keeping quality. About all that our correspondent can do is to over-print it quite severely and then after washing subject the prints to a weak bath of ammonia, carbonate of soda or oxalate of potash. Doing this will clear up the whites but a corresponding amount of blue will be removed from the image as well, hence the advice to over-print.

Mounting Prints On Glass

A reader in Iowa wants to know how to mount prints on glass after the fashion of the old style opalines. The directions are as follows: Prepare a water bath heater by placing one vessel inside of a larger one to contain hot water. Then take an ounce of good gelatine, preferably a soft grade, and swell it in some water by allowing it to soak for several hours. Next take out of the water, place in the inner vessel of the water bath and make up to ten ounces. Put hot water in the outer vessel, apply gentle heat until melted. Thin still further or almost water thin when hot. Put in a shallow dish, also kept warm, immerse both glass and print until they are warm, withdraw in contact, and immediately rub in contact with a flat rubber squeegee, lastly cleaning off the face of the glass and place aside to dry.

Counting Time

Mr. Steadman's method of doing this has one advantage over the plan usually advised of saying: One hundred and one, one hundred and two, and so on, his formula reading: one-half and one, one-half and two, and the like, for the given number of seconds. The latter formula divides the second into more clearly defined quarters and there is less danger of shortening two of these small periods as in saying "hundred" as a two-syllable word. By trying the simple experiment of counting in this manner while another holds a watch to keep time, first using the general formula and then Mr. Steadman's, one will find the latter to give the best results. And this brings me to another thing and that is the unimportance of counting these same seconds off with any great degree of exactness. If one can count up to sixty seconds and find by consulting the second hand of his watch that he has varied only five or six seconds from the actual time, he is close enough for all practical purposes. Six seconds in the minute is only ten per cent and that is a variation that will make no difference in the result of any exposure otherwise properly calculated.

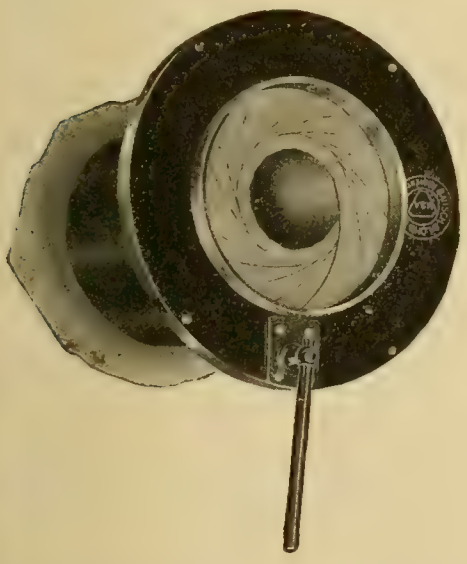
THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

A New Iris At a Moderate Price

Recently the amiable H. W. Sanford, with the professional supply department of the Howland & Dewey Company, showed us a new iris made especially for the use of cameramen. This new product of the Bausch & Lomb Optical Company was made at the suggestion of R. E. Merville of the San Francisco branch.



While simple in design and light in weight, this new iris "fade-out" or "diffuser" is of almost three inch aperture,—almost twice the diameter of the old stereoptican iris that is sometimes adapted to the motion picture camera. In addition, this new iris is but a trifle, if any, heavier or more bulky than the latter. Having a large opening, it can be placed a great deal farther from the lens when a minimum diffusion of the edges of the circle is desired. Both sides being threaded, this iris can be fitted to screw onto different extension tubes and accommodate a mask-box or other device if desired. The leaves of the iris are blackened steel, of such a shape that a perfectly circular opening is maintained at all times, and one that, without any danger of springing or breaking the leaves, can be closed entirely out. Another advantage lies in the operating lever being of sufficient length to make a steady fade-out easy of achievement.

Halation

Halation, properly speaking, is the reflection and diffusion, within the film, from the lighter areas to the adjacent darker ones. Undue contrasts, underexposure and forced development usually conspire to produce halation to a noticeable extent. There is, in addition, what is sometimes called "lens-halation". Whether this appellation is correct or not, the fact remains that lens shades are essential to the successful use of f-3.5 motion picture lenses when strong light prevails.

Quite commonly the term halation is applied to the results of plain overexposure in spots. In such case "lack of latitude in the film" may be somewhat unjust but perhaps not far from the truth. While this brand of halation threatens near the edge of the film, the danger can often be greatly reduced by interposing a before-the-lens mat rather close to the front of the lens. In some cases it will not be necessary to bring the mat close enough for the actual image to show in the picture, for, when much out of focus, a sort of half-shadow or penumbra surrounds the opaque image of the mat. The adjustment of the mat must be made with the lens aperture with which the scene is to be photographed, because, as with the before-the-lens iris, the location of the edge of the mat in relation to the frame line, changes with each change of the lens stop.

In many cases the use of an iris quite adequately cuts down superfluous illumination at the edges of the picture while serving its legitimate purpose. This last is a pictorial one consisting of subduing the corners which might detract from the more important subject or performer near the center. The cel-

luloid masks, referred to in previous issue, are often admirably adapted to this purpose.

Metol Substitutes

About a year ago both the Eastman and the Ansco Companies analyzed a number of the metol "substitutes" then on the market at from three to forty dollars per pound. The "active" developing agents in some of these were wonderful—and terrible—to contemplate. Among other components, actual analysis disclosed cane sugar, casein, silica, table salt, and starch.

One developer, selling for more than thirty dollars per pound, was found by the Research Laboratory of the Eastman Kodak Company to contain ten per cent metol, sixteen of hydroquinone, thirty of sodium sulphite, thirty-three of cane sugar and eleven of other useless constituents. Thus, in this particular substitute the real developing agents sold for about four times their market price. Three others contained sugar in proportions of from thirty to fifty per cent, another contained forty per cent of cooking starch, and yet another contained thirty-six per cent of table salt and a little pyro.

Speaking of pyro, if one must use a substitute for the more convenient metol-hydroquinone developer, why not pyro? Pyro has been for years, and still is, the lowest in price of the real un"substituted" developers. Pyro will give results with a slightly shorter exposure in the negative than will metol-hydroquinone, and pyro is less sensitive to change in temperature. Properly handled, pyro will give good color in either negative or positive film. We have developed both in pyro and secured results that cannot be distinguished from metol-hydroquinone. We have even used it in developing paper prints without stain.

Within the past few months, however, there have been placed on the market a number of metol substitutes, guaranteed by responsible firms. In practical use, many of these substitutes give results that are all that can be desired. Some of these work somewhat more slowly than metol and require the addition of sodium hydroxide or caustic soda in small amounts. Most of the larger laboratories that do not have ante-bellum supplies of metol are now using one or the other of these metol substitutes with satisfactory results, though not always with the same formulæ as previously used for metol. Of course, hydroquinone, now quite reasonable in price, is usually employed as the other developing agent.

Something About Mats and Irises

The following incident, one that recently came to my attention, suggests that a few words concerning mats and irises might be of value. A certain cameraman, being in a hurry, put his iris-fade-out in front of his seventy-five millimeter lens, using the same barrel as he had been accustomed to employ with his fifty millimeter lens, and went ahead. He took it for granted that the results would be about the same, using the same Bell & Howell camera, same barrel, similar set-up, lens aperture, etc., and did not take time to focus upon the ground glass. The result, unfortunately, was a thin, almost useless negative, entirely devoid of any image of an iris in the picture. It happened that the extension tube for using the iris on the fifty millimeter lens was of such length that neither the usual effect of a before-the-lens iris nor the advantage of a smaller stop within the lens, was obtained.

Evidence of this tendency can be observed by placing a circle fade-out iris rather close to the lens with a fairly large opening in the latter. Closing down the circle of the fade-out, it will be seen that not only does its image become smaller, but the brilliancy of the picture within it becomes less. If it were mechanically possible to place the front iris within the lens, its effect would be the same as that of the iris diaphragm forming the "stops" of the lens. On the other hand, as the fade-out iris is moved away from the lens, the image of the circle becomes smaller and sharper.

In fitting an iris fade-out, care should be taken to see that it does not approach that point where it acts as a lens stop on the one hand, or a diffused image on the other.

In Passing

Down in the lower left hand corner of the first page of this department last month there is a sentence reading: "These halations etc., etc." This should read: These relations are not mere "theories"; they exist and influence our results whether or not we thoroughly understand them. In the middle of the second following sentence the words "from it"; have no place. Getting my MSS. into the editor's hands at the last moment seems to be conductive to mistakes.

OUR BOOK SHELVES

"Tree Wounds and Diseases"

This book, with a subtitle, "Their Prevention and Treatment" is the work of A. D. Webster of Regent's Park, London, a man exceptionally qualified by years of practical work and observation. As author of "Practical Forestry" and like works, his name is too well known to require further assurance of his capabilities. The volume is a handsome octavo carrying thirty-two full page plates and numerous other illustrations. In addition to a special chapter on fruit trees the text deals with decaying trees, hollow trunks, support of heavy and diseased branches, injured bark, pruning, injuries from fungi and insects, injuries from animals and birds, preservatives and materials, and the like. The work is complete and the instructions given thorough and in accordance with the most modern practice of the experts in this line. Published by J. B. Lippincott Company, East Washington Square, Philadelphia. Price two dollars and fifty cents net.

"Chemistry For Photographers"

This work, by William R. Flint, is one that should be in the hands of every photographer who wishes to avail himself of the advantage to be derived from an understanding of the underlying laws of photo-chemistry. The relationship existing between chemical reaction and the behavior of the formulas used in practical photographic processes is brought out in such a way that the reader is given a grounding that makes the understanding of the various steps of the several processes quite easy and simple. The different chemical reactions are first discussed, then light and chemical reaction in connection therewith, and finally an explanation of the chemistry involved in developing, fixing, toning and the many other photographic processes. The book is well printed and bound, gold lettering on red cloth making it a handsome volume. Copies can be secured from American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts. Price two dollars postpaid.

"How To Make Enlargements"

This is the fifth of the practical and helpful photographic handbooks known as the Practical Photography Series. In addition to describing the various forms of apparatus obtainable on the market, instructions are given for the building of several types of enlargers at home. While the book is not a bulky one, it seems that the author has neglected no part of his interesting subject and he has managed to cover the field in a way that is most gratifying to the worker seeking for straightforward information. As with the companion volumes, this one can be had in either paper or cloth binding, the price being twenty-five cents and fifty cents respectively. Obtainable from most dealers or from the American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts.

"The Spell of Scotland"

In this, the latest of the well known "Spell Series", Keith Clark, who is also the author of the volume dealing with Spain, has given us one of the most interesting and illuminating of books. The writer, with a style that adds much to the interest of his story, entertains and instructs the reader with a charming account of the people, their country, their history, and the unlimited possibilities that his theme affords. His story takes the form of a series of trips here and there, much as any visitor would be pleased to indulge his fancy had he the same appreciation of the best plan to follow in so doing. An intimate knowledge of the country, together with a love for it and its traditions, precludes any possibility of the writer being other than entertaining, were such a danger possible in Mr. Clark's case. To know Scotland intimately, and well, one

cannot do better than to read this book. The volume is uniform with others of the series, cloth bound in gold and color, an excellent map, a wealth of full-page illustrations with not a few in colors, making over three hundred and fifty pages. Published by the Page Company, 53 Beacon Street, Boston, Massachusetts. Two dollars and fifty cents, net. Postage, twenty cents.

"Advertising By Motion Pictures"

Ernest A. Dench, the well known authority and writer on the subject of motion pictures and their production, has just given us a book bearing the above title and dealing with business-getting publicity methods based on the use of motion pictures. The business man, be he retailer or manufacturer, will find the book an interesting and instructive one, moving pictures bidding fair to assume an important position in the advertising field at an early date. Mr. Dench covers the subject most thoroughly; and, as the moving picture is already proving itself both a popular and an effective means of advertising, the book should make a wide appeal and enjoy a large sale. It is published by the Standard Publishing Company, Eighth and Cutter Streets, Cincinnati, Ohio, price one dollar and fifty cents postpaid.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Chicago Camera Club

The January bulletin of the Chicago Camera Club announces an interesting program for its regular Wednesday evening meetings. This includes a talk on "Putting Interest in Pictures", by Mr. W. H. Wisner of the Art Department of the *Herald,* a talk on photo engraving by Mr. O'Neill, followed by a visit to the workrooms of the Barnes Crosby Engraving Company, a discussion on members' prints, final selection of lantern slides for interexchange set, and the regular business meeting for the last Wednesday evening followed by a review of current numbers of photographic magazines. The officers of this enterprising club are putting forth their best efforts in behalf of the members and as visitors are cordially welcome at these meetings, a good attendance and interest in club affairs should follow.

In Path of Padres

An illustrated lecture on the "Path of the Spanish Padres" was given last night by Frederick Munson, F. R. G. S., at the home of Captain and Mrs. Randolph Huntington Miner, No. 649 West Adams Street. Mr. Munson showed many interesting views of the pueblo country of New Mexico and Arizona. His journey, as shown by the pictures, was as nearly as possible a retracing of the pathway of Coronado. The lecture was under the auspices of the Los Angeles branch of the American Archæological Society.—*Los Angeles Times.*

Picturesque Buffalo

From the *Buffalo Evening News* we learn that our good friend W. H. Porterfield, the pictorialist of that city, is, through an exhibition of his work at the galleries of the Guild of Allied Arts, showing his fellow citizens the beauties of their own city and its surroundings. Even were we not acquainted with the high pictorial quality of Mr. Porterfield's work, we could believe from the extended notice given, that the exhibition is a remarkable one and one that reflects great credit upon the artist responsible therefor.

Illinois College of Photography

Dr. D. W. Parkinson, Ex-President of the Southern Illinois State Normal School at Carbondale, visited the College on a recent professional trip to Effingham, and was well pleased with the equipment and with the work done by the students.

We note that Hon. Charles D. Gallagher, of Ely, Nevada, Assemblyman from that district, is in the field for re-election. Mr. Gallagher was formerly Superintendent of the Colleges, and it seems that he is making a success of politics, as he has of photography.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

NEW MEMBERS.

4285—J. F. Carrigan, Box 554, Clifton, Ariz.
3¼x5½ and 4¼x6½, various papers, of mountains, streams, beaches, snow and landscapes; for views and things of general interest. Class 1.

4286—John J. Lee, Box 856, Ashtabula Harbor, Ohio.
Any size up to 5x7, various papers, of marines, boats, docks, coal and ore loading and unloading machinery, etc.; for any interesting subjects, figure studies, etc. Class 1.

4287—J. A. Cornish, 203 Spadina Ave., Toronto, Canada.
1⅝x2½, 2¼x3¼, 3¼x4¼, and post cards, developing papers, of figure studies, child studies and local views; for figure studies and bathing scenes. Class 1.

4288—E. O. Hoffman, North Liberty, Ind.
Class 3.

4289—I. M. Runyon, R. F. D. No. 4, Box 62, Greencastle, Mo.
Class 2.

4290—S. J. Jarvis, 281 Bank St., Ottawa, Ont., Canada.
Class 3.

4291—John R. Palmer, St. Johnsville, N. Y.
Class 2.

4292—Morgan Bryant, Creek, Tenn.
3¼x4¼, finished on post cards, developing paper, of landscapes, animals, pets, portraits, etc.; for photos of thorobred stock, pets, pretty views, or anything of real interest. Prints only desired 3¼x5½ or smaller. Class 1.

4293—M. L. Munson, Nashville, Mich.
Class 2.

4294—C. O. Diggs, R. F. D. No. 2, Lyndon, Ohio.
3¼x5½ and 5x7, developing papers, of landscapes, farm scenes, and still life; for landscapes and farm scenes. Class 1.

4295—Cleo Frye, P. O. Box 3, Berlamont, Mich.
3¼x4¼, 2¼x3¼ and 1⅝x2½, developing papers, of buildings, and individual persons, also nature pictures; for buildings and nature pictures. Class 1.

4296—Jesse B. Hastings, Stony Point, N. Y.
Class 2.

4297—Robert P. Dexter, 302 S. East St., Coudersport, Pa.
3¼x5½, 5x7 and smaller, various papers, of miscellaneous subjects; for the same. Class 1.

4298—Kate M. Butterfield, 2600 Center Ave., Bay City, Mich.
3¼x5½ and 5x7, developing papers, of mountain views, woods, waterfalls, animals and Yosemite Valley; for ocean views, clouds or any interesting view. Class 1.

4299—C. F. Rodgers, D.D.S., Box 296, Conneaut, Ohio.
Class 3.

RENEWALS.

161—F. W. Sutton, 205 17th Ave. East, Hutchinson, Kans.
Will exchange 8x10 game study for game study. This is a rabbit and five ducks mounted in an oval. Write what you wish to exchange first. Class 1.

777—Herbert R. Gregg, Oroville, Wash.
Class 2.

2009X—Dr. Chas. F. Meacham, Bellows Fall, Vt.
Class 1.

2482—John W. Kimball, Windsor, Vt.
5x7 and post cards, developing papers, of rivers, lakes, brooks, mountains, country road scenes, landscapes, etc.; for views of scenery, nature studies, draped and nude studies. Will send out only good work and expect the same. Class 1.

2565—E. V. Bargamin, Elk City, Idaho.
Stereos and post cards of nature studies; for the same. Class 1.

2773—John L. Maloney, Box 56, Missoula, Mont.
Class 2.

2858—H. M. Sutton, Hazel Mines, Van Horn Texas.
Stereoscopic prints exclusively, various papars, of landscapes and mountain views in United States and Canada; for similar subjects. Stereoscopic prints only. Class 1.

3254—Vernon W. Hutchins, 39 Academy Sq., Laconia, N. H.
Class 2.

3255—A. M. Sutton, 175 So. First St., San Jose, Cal.
Class 2.

3721—W. T. Wright, 594 Carroll Ave., St. Paul, Minn.
Exchange lantern slides unmounted of Switzerland, Italy and ocean scenes, also England; will also exchange colored slides; also 3¼x4¼ to 5x7 of scenes all over the world in developing paper or post cards; good work guaranteed. Class 1.

3976—Chas. C. MacKay, 111 Beck Ave., Waterloo, Iowa.
Class 2.

4009—H. J. Gergen, Escondido, Cal.
3¼x5½ of locomotives and general scenes; for the same. Class 1.

4022—V. E. Fowler, Box 919, Portsmouth, Ohio.
5x7, developing papers, of figure studies, nude and draped; for the same. Class 1.

4172—J. C. Flint, 687 61st St., Oakland, Cal.
3¼x4¼, 3¼x5½ and 4x5, developing papers, of woods, P. P. Int. Exposition, marine views, architecture and San Diego Exposition; for woods, marine views, mountains, and historical buildings. Class 1.

4184—B. F. Loomis, Anderson, Cal.
Class 3.

CHANGE OF ADDRESS

2151—Pres Fidler, 1351 East 38th St., Oakland, Cal.
(Was Westwood, Cal.)

4272—M. C. Nording, Bostwick, Fla.
(Was Waukegan, Ill.)

NOTES AND COMMENT

A Department Devoted to the Interests of our Advertisers and Friends
In it will be found much that is new and of interest

Reported By William Wolff

The Halverson studio, Vallejo, has been taken over by Carl Broden.

A. V. Richardson is opening a postal studio on Broadway, Oakland.

Mose and Mrs. Mose Grady spent January in San Francisco, after putting in a year in Bakersfield at the Hartsook studio.

John Smith of Hirsch & Kaiser went to Canada to spend the holidays with his family.

Messrs. Linsay and St. Clair of Ansco fame were in San Francisco during the holidays.

F. C. Lee, Fresno's leading photographer, was in San Francisco during January.

The nineteen seventeen annuals are going fast. Have you secured yours?

Fred Seyler, the ever welcome Taprell, Loomis salesman, is on the coast again.

Clarence Defrees of the Davies studio, Portland, reported a big holiday trade.

W. H. Schulze, formally with Burr McIntosh has taken over the management of the Bushnell studios, considered the most beautiful on the coast.

Herbert Small, Pty. Ltd., Melbourne, Australia, with branches at Sydney, Adelaide and other principal cities, have made arrangement with Messrs. Wolff & Dolan to act as distributors for Probus Preservative Paint and Probus Print Lustre in the Antipodes. The manufacturers consider themselves extremely fortunate, as with these connections they will be enabled to give more efficient service to the increasing list of West Indian and New Zealand users of their products.

Mr. Lipman Makes a Change

A. Lipman, so long and favorably known as manager of the photographic department at the Emporium, has taken a position with Henry Kahn & Company, the well known dealers in photographic and optical goods. The latter firm has opened a new store at 54 Geary Street, where Mr. Lipman will be located, and as the location is an excellent and an easily accessible one, a good business is assured.

"Every Click a Picture"

This is the new slogan adopted by Burke & James, Incorporated, intended to apply to their three products alike, Rexo Cameras, Rexo Film and Rexo Paper, three products having a quality that should enable them to live up thereto if given half a chance. The firm has gotten out a handsome little booklet describing the five important new features

incorporated in the Rexo Cameras and this they are glad to send free to any of our readers who may be interested. The Rexo Finder has special features that appeal, the spool chamber makes loading easier and more sure, the focussing device has micrometer exactness, while an extra plate inside the camera back insures a flat surface to receive the image. The demand for Rexo paper is taxing the capacity of the factory to the limit, while Rexo Film, now that new machinery has been installed to enable a much larger output, will be supplied promptly and fully. This film has speed and the resultant

negatives are characterized by a snap and brilliancy that gives printing quality of most gratifying kind. Being rich in silver, these characteristics are marked, while the non-halation and orthochromatic qualities are also of the highest. A trial of either Rexo film or paper is worth one's trouble and both products will give an excellent account of themselves in actual use.

Pirie MacDonald Says:

"Yes, I have used the Cooper Hewitt light from the time it first came out. I used it exclusively, as I prefer it to daylight in every way. I draw these shades during the sittings, so as to entirely eliminate daylight;" he pointed to the ordinary opaque green shades at the several windows in the room. "I found long ago that I could get all the effects with Cooper Hewitt light that I could get with a skylight, and get them invariably. You can see for yourself,"—and he swept with his glance the three sides of the room which were hung with examples of those wonderful life-like portraits that have made the name of Pirie MacDonald known wherever photographic art is appreciated. Following his suggestive glance, I recognized the faces of men prominent in their various walks of life. In each case the portrait, like the subject, was a distinct, impressive personality. There was no attempt at flattery, at idealism. "But this does not preclude a wide scope of artist's treatment. Here, for example, the modeling is rugged and bold,—a vigorous lighting; while in this, the soft gradation of half-tone is the keynote. Here is a lighting that was once almost a fad,"—indicating a striking Rembrandt effect.—From "An Interview With Pirie MacDonald", by *William C. Hubbard.*

Well Worth Having At Hand

Through the courtesy and kindness of G. Archer Lindsay, the genial Ansco representative, down from the Northern Coast for a short vacation, a number of very interesting booklets reached our desk. These are gotten out by the Ansco Company, not only as advertising matter but to help and assist those using their products. Incidentally, the information given is of value to others as well and we have recently answered not a few of the questions that reach us daily by referring to the pages of these helpful little manuals. "Cyko Prints" is given up almost entirely to valuable information, the directions for double printing and the production of tinted borders being particularly clear and instructive. "Professional Cyko Pointers" is perhaps less comprehensive but it contains much that is of the greatest value to the professional worker. The "Speedex Film" booklet follows the lead of the two just mentioned, going particularly into that trying subject, the correct exposure for different interiors. The Ansco catalogue is a handsome one with a cover illustration reproduced from a salon picture by one of our best known pictorial photographers. These several booklets together with less pretentious printed matter covering the several products of the firm can be obtained free from all Ansco dealers or by addressing the Ansco Company, Binghamton, New York.

Notes From Sacramento

Bert Hodson, the popular photographer who has been located in a ground floor studio on K Street for so many years, has moved around to the Eighth Street side of the Clunie Building, where a handsome studio and reception rooms have been fitted up, again on the ground floor.

Dean Burley, who is in charge of the Bushnell gallery, reports an exceptionally fine holiday business with every prospect of increased business for the new year.

The pioneer photographer, J. E. D. Baldwin of the Rembrandt studio, also reports good business and he seems well pleased with the change in location from the opposite side of the street.

George Knox has opened an X-ray laboratory in connection with his photographic supply business and reports considerable work in that line.

The McCurry Photo Company has done its usual large amount of commercial and view work during the past year and the firm anticipates even greater demands upon their services during the coming year.

Ing & Allee, Kimball, Upson & Company and the other stock houses all report an excellent business for this season of the year.

Ben Lyle of the Defender Photo Supply Company spent several days in Sacramento early in January and reports satisfactory business for his firm.

A New Motion Picture Camera

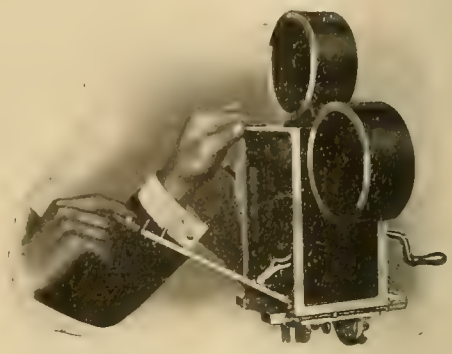
We have just received a copy of the attractive new illustrated catalogue describing the new Simplex Motion Picture camera just placed on the market by the manufacturers of the Alamo, which last, it will be remembered, received the gold medal at the Pan American Exposition in 1915. This new camera is constructed entirely of metal, with the working parts all of high grade brass

and steel. It is furnished with reels to accommodate either two or four hundred feet lengths of film, and these, being on the outside of the camera proper, permit of either size being used with the same camera. These magazines have an automatic device which closes the opening through which the film passes, the instant the camera is opened;

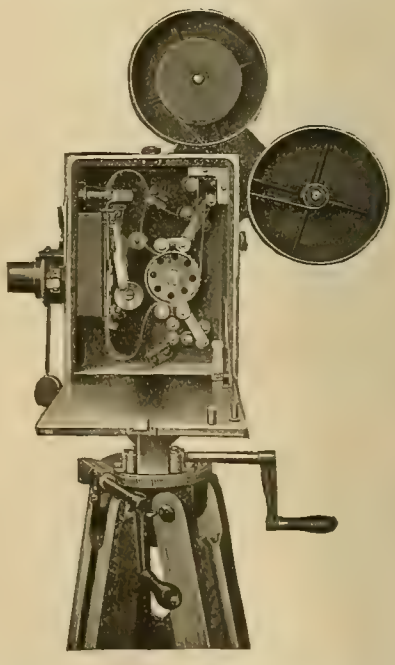
and, closing the camera door automatically opens this passage and allows the film to pass freely.

A distinctive feature of this camera is the extreme ease and quickness with which the film may be threaded, the operation requiring but a moment's time, and is done after the film has been connected to the take-up reel.

The reproductions herewith show, respectively, the camera in use; the loading of the film; a back view showing method of opening; and, the complete mechanism with film



ready for operation. This is said to be the first American made motion picture camera of the very highest type of efficiency, selling at the popular price of two hundred and fifty dollars, complete with two hundred foot reels; or two hundred and seventy-five dollars complete with four hundred foot reels. One of the first models was sent to Chicago to be demonstrated before the managers of the



different film companies, and all accorded it the highest praise and expressed surprise at its being sold at so low a figure.

The complete Simplex catalogue, describ-

ing fully all models of their motion picture cameras and apparatus as well as the now famous Northern Lights and Multiflex Reflectors and Enlargers, will be mailed on request. We advise our readers to send for a copy today, addressing, The Simplex Photo Products Company, Richmond Hill, Long Island, New York.

Mr. Dawes' Assistant

E. L. Hamilton, for some four or five years connected with the Kansas City Photo Supply Company, has been appointed Assistant Manager of the Promotion of Trade Department of the Wollensak Optical Company of Rochester, New York. His work will consist mainly of traveling through the Middle and Far West, in the interest of the Wollensak Optical Company, Mr. Dawes, Manager of the Department, being compelled to spend the major portion of his time in Rochester as pressure of business there demands his presence. Mr. Hamilton is well versed in the photographic business, is wide awake and progressive, and these, together with his geniality, should make him a most welcome visitor wherever his path should lead.

"Browning's Magazine" Monthly Competition

Browning, King & Company, as no small part of our readers are doubtless aware, maintain large retail clothing stores in seventeen of the leading cities in this country. They publish a handsome and most entertaining little monthly entitled *Browning's Magazine,* in which one of the features is a department entitled "The Amateur Photographer". In connection with this last there is a monthly print competition with awards of five, three and two dollars, the prizes being awarded more on a basis of popular interest than on the more expert technical achievements, the idea being to interest the beginners and the younger amateurs. The magazine is sent without charge to those dealing at one of their seventeen retail stores, who desire it. To others a nominal charge of twenty-five cents is made to cover the postage. Such of our readers who reside in or near a city in which is located one of the Browning, King & Company stores should avail themselves of the opportunity, and those not so fortunately situated will not regret the expenditure of twenty-five cents for the magazine which can be secured by sending that amount to, Publication Department, Browning, King & Company, 16 Cooper Square, New York.

"Tabloid" Brown Toner

Burroughs, Wellcome & Company are now issuing a special formula under the name of "Tabloid" Brown Toner for the purpose of toning sepia prints on bromide or gaslight papers to the colder richer brown which is preferred for certain subjects. It is also suitable for use with sepia-toned lantern slides. These "Tabloids", which come in bottles of twenty-two, we have tried out and find excellent. The process is very simple. Take a print or slide previously toned with the sepia toner and immerse it in a solution of one "Tabloid" Brown Toner in one ounce of ten per cent hypo solution. The warm sepia changes first to a cold brown and finally to a rich brown black. Time of immersion, two to ten minutes, according to tone desired. After toning, wash in running water for thirty minutes. This formula will not tone black prints; it is for use with sepia-toned prints only.

A New Selling Arrangement

The exclusive wholesale selling agency for the products of the Universal Camera Company of Chicago has been taken over by Burke & James, Incorporated, 240 East Ontario Street, Chicago. This arrangement we understand was consummated only after a most searching investigation into the merits of this Universal Camera for motion photography. Among the users of this camera they found many of the most prominent motion picture men and large institutions such as the Selig-Tribune Weekly, the Herald Weekly, and they also found it being used to no little extent in Europe. One of the great advantages of this camera is the quickness with which it can be set up and operated enabling the user to, as one of them expressed it: "Get the picture and get away before the other fellow gets set up". As the wholesale selling agents, this firm has in this camera an excellent proposition for both photographic and motion picture supply dealers and one that should be looked into by such firms. A very handsome and instructive catalogue is available and the merits of this camera should be investigated by intending purchasers of such an instrument.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted free. No business advertisements accepted.

WANT SALESMEN For our advance slides of motion picture stars. No investment required. Percentage basis. All time or side line. Frank B. Howe, 6822 Sunset Blvd., Los Angeles, Cal.

PHOTO STUDIO For sale. Up-to-date, in the very heart of business district, county seat of 4200 people; only studio in the county in the heart of gold fields of California, money plentiful, established 30 years, modern equipped. Would consider exchange for city not less than 15,000 people. Bankable security accepted. Live town for live man, number of small towns to draw from to 2000 people. Price $700.00. Let me hear from you immediately. Erik's Studio, Jackson, Cal.

WANTED Pair of condensing lenses 9 inches or larger. Must be in perfect condition. State price. Address Sno, Box 298, Modesto, Cal.

SALE OR EXCHANGE Burke & James Ingento No. 45 Enlarging camera, list $65.00, sell for $30.00, good as new; or will exchange for Goerz Dagor lens series 3 No. 2, 7 inch focus. Address F. M. K., care "Camera Craft", San Francisco, Cal.

WANTED TO BUY Studio in good town of not less than 1500 population. West or Northwest preferred. State price and give particulars in first letter. R. Linstad, Ambrose, No. Dak.

WANTED Pair 10 inch condensing lenses, mounted. State price and condition. The Midzuho Company, 1639 Post St., San Francisco, Cal.

WANTED 5x7 view camera, standard make fitted with high speed anastigmat lens; also professional enlarger with or without lens. W. C. Gowin, Watertown, So. Dak.

POSITION WANTED By expert retoucher and finisher. Best of references. Address R. F., care "Camera Craft", San Francisco, Cal.

FOR SALE No. 9 portrait Unar, 10x12 Ross Homocentric, 8x10 Velostigmat, 5x7 Hall Reflex with f:4.5 lens, 3A Special Kodak Zeiss lens, 5x7 reversible back Reflex, f:6.3 lens, 6 holders, case. Sacrifice for cash only. For particulars apply Jack Wirtz, 3013 Bryant Ave. South, Minneapolis, Minn.

WANTED First class printer for professional and amateur printing. State salary and experience in first letter, also send photo. N. Reiman, 531 East Main St., Stockton, Cal.

FOR SALE Cheap or exchange Eastman 5x7 plate tank, Thornton and Pickard 2 and 4 inch shutters, 8x10 Seneca camera, R. R. lens, Auto shutter, new 5 foot 8 inch Cirkut printing frame, set one inch Nehring's supplementary lenses, new Wold Air brush model N, 4 inch Silent studio shutter, large Parallax reflector and small electric fan. Good kodak wanted. H. Gunther, 1327 O'Farrell St., San Francisco, Cal.

POSITION WANTED By a young lady as retoucher or assistant in a good studio; graduate of Illinois College of Photography. Samples of retouching sent upon request, prefer Middle or Western States. Address E. G., care "Camera Craft", San Francisco, Cal.

FOR RENT The best appointed photograph gallery in Texas; best location; established over 10 years; modern in every way; only first class artist need apply. R. M. Mothner, Beaumont, Texas.

POSITION WANTED As photographer, home portraiture or out-of-doors, manager of amateur finishing department or salesman in photographic supply store; 12 years' experience; hot climate preferred. Address W. P., care "Camera Craft", San Francisco, Cal.

FOR SALE Studio in an Iowa town of 20,000 population; good surrounding country and a fast growing town. Over three-quarter-million dollars' improvements the past year. Doing a good business, good reason for selling and will sell at a bargain. For particulars address Ora D. Church, Sioux City, Iowa.

FOR SALE One ounce each Hauff's Amidol and Agfa Metol—both for $5.00 C. O. D. Ernest Smith, Ford City, Mo.

POSITION WANTED By all-round photographer, experienced in all branches of work; best of references. H. B. K., care "Camera Craft", San Francisco, Cal.

FOR SALE Investigate. Must get outside this summer, attractive studio, main street, ground floor, good prices for high class work; one other small studio, no competition on high class work. Population 6000, fine climate and scenery, health resort. Studio invoices $1,200.00, December business over $800.00. Will take out $400.00 worth of cameras, lenses, etc., if you wish and sell for $400.00. Possession April 1st. This is a genuine bargain, you must act quick. Address Studio Ashland, Ashland, Or.

FOR SALE 3¼x4¼ German Ica roll film, takes plates, Carl Zeiss Tessar, Compound shutter, list $62.00, French tripod, list $6.00, sell for $40.00. Address C. H. O., care "Camera Craft", San Francisco, Cal.

RETOUCHING Send your negatives to us for retouching that will please. Sample negatives retouched for thirty cents. Woodward Portrait Studios, 1013 Nicollet Ave., Minneapolis, Minn.

FOR SALE Ground floor studio, fully equipped, good business, nice town; good reason for selling for half its value; no competition; dairy and fruit country. H. A. Bliler, Fortuna, Cal.

FOR SALE Studio with established trade paying a good profit every month in the year. Over thirty years in present location which is best in the city. Have purchased other and larger business and must sell. Price $900.00 cash. Write Hermon Pfeil 21 Main St., Champaign, Ill.

FOR SALE Studio in a mining camp of 5000 inhabitants, payroll $120,000.00 per month, exclusive franchise, ideal climate for health seeker, will teach the profession to the purchaser if necessary on a percentage basis. Enclose a self-addressed stamped envelope for reply. Address R. S., care "Camera Craft", San Francisco, Cal.

WANTED TO BUY A well established and equipped studio in California town not under 15,000 population. Price and terms must be right; will also consider renting good studio with privilege of buying. Address R. E. C., care "Camera Craft", San Francisco, Cal.

WANTED A-1 lady retoucher. Also to operate finish and take charge of studio. Steady work, new modern studio. Ground floor. Send samples of your own work, photo of self and state experience. Give full particulars and salary expected. Am married, family of four children. Address The Stine Studio, Worland, Wyo.

XIV No. 3 MARCH, 1917 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

In *1909* it was stated of

Cyko Paper

"Each grade of Cyko has more latitude, plasticity, chromatic rendition and proper scale of gradation than any other paper. Its scope is unlimited"

and yet its scope has been enlarged every year since, so *that in 1917* it has taken the place of all former printing processes, because it has the brilliancy of platinum, and delicacy of carbon—and in the Enlarging grades all of the above mentioned qualities with speed almost equal to Bromide paper.

CYKO is the single and universal expression of photography today

Ansco Company

Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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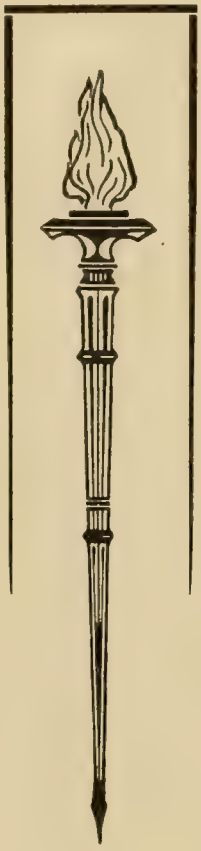

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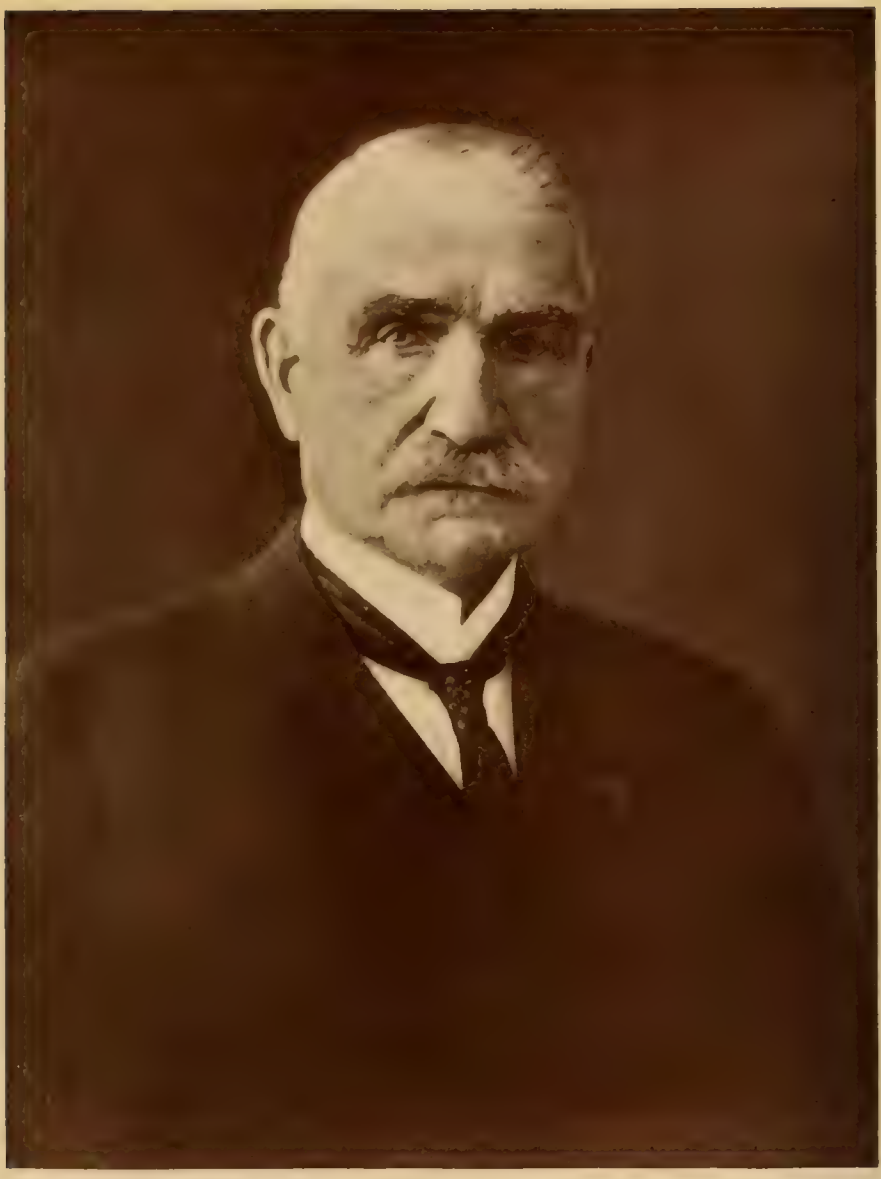


COLONEL PHILO HERSEY
By CLAUD H. SIMSON

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV MARCH, 1917 No. 3

Copying and Re-Copying

By Claud H. Simson

With Illustrations by the Author

When I was a boy in my teens, back in the wet plate days,—my employer was a big Irish Apollo, as handsome as he was kind and generous. While I have never seen a better operator, he so hated copying that he handed that department over to me; and, I was quite proud when my work met with his approval. It is a long way to Tipperary and it saddens one to think of the good old friends one has lost forever;—how they would have enjoyed the marvels of modern photography. In those old days one just ambled along easily, while now one must quicken his gait if he would keep up with the procession. The photographer of today does not concern himself with coating plates and fuming paper, but he must do all sorts of work unheard of in the earlier days of our art.

A lady brought two photographs to the studio the other day; one, cabinet size, a family group taken in a studio, her mother as a young lady, being included. The face had been retouched until it looked as smooth, flat and hard as a gravestone; her neck was encased in one of those high, stiff, formal De Medici collars and her hair was piled up on top of her head in the style prevailing at that time. The other photograph was of her father, one taken at a later period, far removed from that of the other. The subject had been posed with his hat on, out in a garden, the harsh light and shade making violent contrasts. The face, quite small, was very rocky looking, the hat brim threw a deep shadow that extended almost to the eyebrows, the eyes themselves looked like slits, and to make matters worse, a pair of spectacles cut off and obscured their upper portions. To add still further to the difficulties, I was expected to remove the old gentleman's hat and supply hair in its place, dispersing also the black shadow left on the forehead that made the subject look like a negro. To "make

FLORENCE

AN EASTERN GIRL

confusion worse confounded" the albumenized paper was badly cracked, and of course the lines of these cracks, sadly exaggerated in copying, ran into those of the picture, rendered the face still more obscure; in fact, I was compelled to look at the picture quite closely in order to find the broken atoms that constituted the little detail that was available.

The lady's imagination was not checked by my calling attention to these wretched conditions; no, sir, she desired the two busts grouped together, the treatment to be "soft, artistic, silvery", as she expressed it. It was enough to make a fellow's eyeballs start from their sockets. My! I must say the whole cold proposition scared me badly. I asked her if she did not know some other fellow who could carry out her ideas, for I really felt like a quitter. She assured me she did not, pausing only to produce the frame she required filled; the old order was reversed in this case, the picture had to be suited to the frame, not the frame made to suit the picture.

As the reward was to be one of Uncle Sam's glistening pieces of gold, I partially revived and promised to get something in the frame that might be satisfactory, although I was somewhat dubious as to the results, in view of the flimsy basis upon which I was to work. I decided to take a sporting chance and try it out, and it may be interesting to those who have never tackled a task like this to know the "modus operandi". I had intended showing, as illustrations to this article, prints from the copy negatives, a print showing the two heads pasted on the white paper, and the finished result, but the lady was not willing that the pictures be published, much as I would like to add to the interest by including them.

First I copied the woman's head from the group, making a small size cabinet head. Then I made a copy of the man's head, and on this negative I blocked out the hat, removed the shadow from the forehead, prepared as far as I could for the hair that was to be put in, and removed as many blemishes as possible. This was placed in the enlarging camera and enlarged to the same size as the other head. I then took the print and with a pair of scissors cut out the head, leaving the collar and necktie attached as they were of service. I did the same with the woman's head, following the outline of the cheeks and chin but removing the neck and a great quantity of the hair in order to secure better proportion and to bring it into harmony with the face.

CHILDHOOD

Taking a piece of white paper having a nice silky texture that took lead freely, I arranged thereon the two heads in a simple conventional way, the man at the back and a little higher than the woman in front with her shoulder resting against his figure, a little size securing them in position. With the two heads on the white paper, I took an HB pencil and put a new coat and waistcoat on the man, further advanced the hair, and added a neck and waist to the woman's head, shading in the background all very soft and delicately. I then sized up the work somewhat and found it looked rather grotesque with the heads standing out from the paper as hard as tiles.

Asking the lady to look at the picture in this unfinished state did not bring forth the expression of horror that I expected. She simply advised that she would prefer the heads straighter than they were. "All right", I said, and

proceeded to remove and readjust them. This, of course, dislocated my drawing, but with the aid of a soft eraser and a modicum of patience, I fixed my composite picture in good shape, ready for copying. A negative was made and extensively retouched, care being taken to soften down the hard, black, ridge-like lines left by the scissors and merge all softly into the background. I also worked up the penciling on the woman's neck until its texture and quality resembled the flesh on the face, attended to every minor detail, pulling the whole composition together as much as possible.

Once or twice I thought I would have to give it up, success seeming as far away as the Rocky Mountains. There were so many discordant elements to bring together in order to get some harmony and quality into the faces, as they had been photographed in lights from opposite directions. The final print from this last negative was, quite fortunately, just a tone that worked up nicely to match the moulded silver of the frame. Taking a fine pointed sable brush, some India ink with a little French blue to cool it down, I brought the print to a finish, never losing sight of the fact that the likeness had to be retained or the value was lost.

When the lady saw what I considered the finished picture, she coolly explained that her father never parted his hair in that way, going on to describe just how he did. I was discouraged, but I saw a loop-hole through which I felt I might escape from defeat. I ventured to ask if I might make the hair, which I had left rather silvery, a little darker. She consented and the day was saved for me. I worked in the parting as she wished it, the work not being difficult, as securing a darker tone provided for the obliteration of all traces of the alterations.

My task was accomplished, the lady expressed her satisfaction, the "picture" was placed in the frame and carried away. A little faking may be excused, but trying to do too much is wearisome to the soul. While the result may please the patron, there is, after all is said and done, something very honest and desirable in a straight photograph, particularly if it be one made by a photographer having skill and judgment.

It is not the work itself, but the spirit in which the work is accepted and performed, that ennobles the worker. I do not believe that man was put upon this earth for no better purpose than ceaselessly to push a piece of wire through a little hole or endlessly repeat the same simple, uniform operation. I believe, on the contrary, that man should be, as far as possible, relieved from work partaking of the character of drudgery, but that such work as is necessary should be performed unhesitatingly, uncomplainingly and conscientiously. The principal element which gives labor its dignity and ennobling quality is its voluntary character. There is nothing ennobling about the toil of the slave crouching beneath the lash. There is nothing ennobling in the work of the serf bowed down by the weight of centuries. There is little of the dignity of labor in the forced work of the convict or of the man toiling under the padrone system. The greater the initiative and the more complete the independence of the worker, the greater the pleasure in his work and the more educating and ennobling it becomes.—JOHN MITCHELL.

Making One's Own Kits

By Charles A. Harris

With Illustrations by the Author

The kits occasionally required for the accommodation of plates smaller than the holder of one's camera can, of course, be had in standard sizes, of dealers. There may, however, be an occasional need of one to accommodate some special shape or size of plate, one not obtainable, and in such case a kit answering every requirement may be made as follows: For use in the 5x7 holder select a piece of mounting stock of the thickness of the average glass plate and, say, 6x8 inches, so as to trim to exact size when the pasting process is finished and dry. Also from some cover paper material that, while thin, is of good quality, not easily bent or torn and preferably black, cut one piece the size of the cardboard above and a second piece of the same width but six and

THE SWIMMING POOL—"ARCADY"

SECTION OF THE BATHS—"ARCADY"

one-half inches long. These two sheets of paper are to be pasted one on either side of the cardboard, the larger piece upon the under side, when in use, and forming part of the rabbet for the plate. The only purpose of the sheet pasted on the top side is to counteract the tendency to curl or buckle which happens when a sheet of paper is pasted to but one side of the cardboard. The top sheet is pasted on first and allowed to dry under pressure. Measuring but six and one-half inches in length there will be one-quarter inch at each end of the kit not covered. This is to keep the two ends of the kit that go into the rebates of the holder of plate thickness.

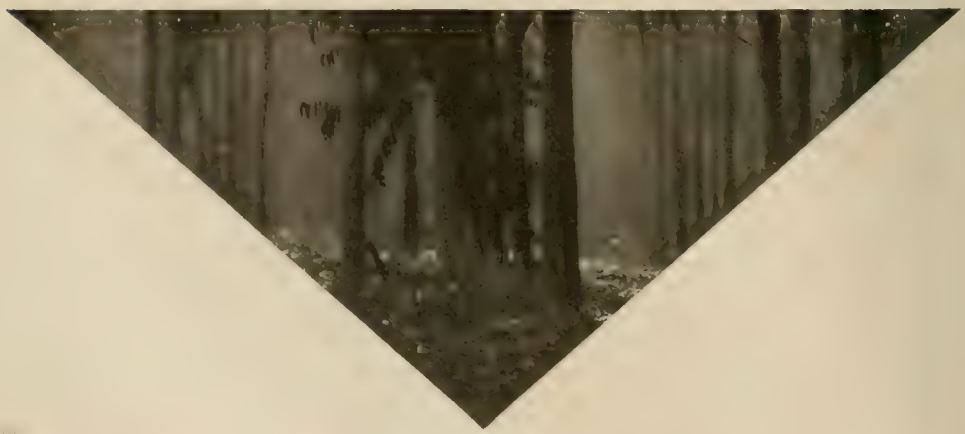
The opening for the plate is now cut. Lay this out with exact measurement and cut a trifle outside so as to allow for possible shrinkage or expanding that may result from the moistening of these materials. The full size sheet of the cover paper is next pasted to the opposite or lower side of the cardboard and when dry the center of this lower sheet is cut out, leaving a half inch margin around the plate opening. The object in using this thin cover paper is to secure

A RELIC OF PIONEER DAYS

"ARCADY"—A HOME OF TODAY

for the small plate as far as practicable, the normal plane or position of a full size plate in the same holder. A kit for enlarging purposes could be made of thicker stock and, of course, in this case the center would be cut so as to leave not more than one-eighth of an inch around the plate opening. The buttons to be used for fastenings on the top side can be fashioned with a pair of shears from thin pieces of brass, copper or zinc. These should be oval in form and the nails taken from a cigar box, having thin, flat heads, make good rivets. The nail is cut somewhat longer than the thickness of the kit and filed to a sharp, thin point, after which it is driven and clinched. These buttons I place in the center of the long sides of the kit which leaves the full length of the plate unobstructed for the exposure. Instead of a button on either side, it is rather better to rivet to one side a strip of metal an inch or so long, extending over the edge a little; a button on the opposite side completing the fastening. Exeunt.

Beauties of execution constitute the adornment rather than the spirit of the message, albeit, if properly directed, they should be very helpful to the effect. Every medium has its characteristic charm, and photography certainly has beauties peculiar to itself, for beautiful photographs have been made in a way that would be impossible by other means.—ANTONY GUEST.



A Home-Made Projector

By F. R. Shepherd

With Illustrations by the Author

SMILES AND SUNSHINE

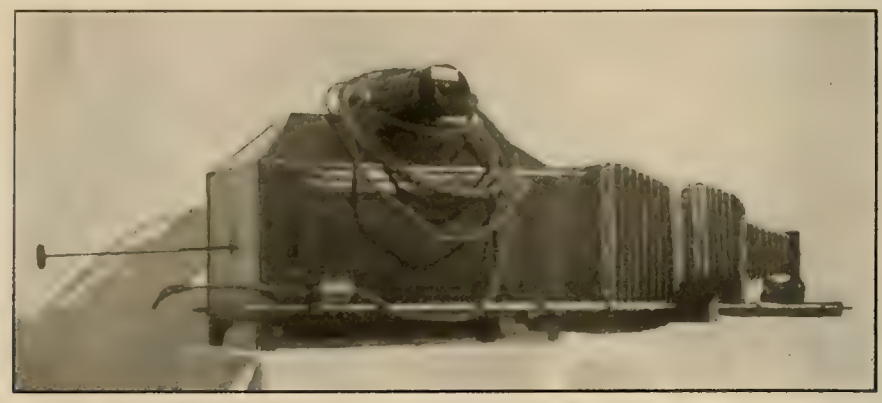
MAKING of a lantern slide projector, while not a particularly simple matter, is well within the capabilities of anyone having an average amount of mechanical skill combined with at least the ordinary endowment of patience. The photograph reproduced herewith will give an idea of the outward appearance and construction of a very satisfactory projector that I have made for my own use.

The lamp house is eight and one-half inches wide, twelve inches high and twenty-one inches long. The bellows, as shown, is made up of those from an old 8x10 view camera and a discarded 4x5 Poco plate camera, the lens and front board of the latter being also retained and used. This two-section bellows, in connection with the lamp house and the case for the condensers, gives a length over all, when extended, of about three feet. The condensers are six and one-half inches in diameter, but if one wishes to use the projector for lantern slides only, less expensive condensers, those of a smaller diameter, would be sufficient.

The controller, shown on top of the lamp house, is made by the Bausch & Lomb Optical Company and cost five dollars. This works on any one hundred and ten volt, home circuit; its function being to regulate the amount of current delivered to the lamp so as to prevent blowing out of the fuses in the house circuit when the carbons are drawn in contact to form the arc.

The lamp house is constructed of galvanized iron, riveted and soldered together so that it is practically light tight. If the apparatus is to be used only for projecting lantern slides, this last is not so important, but when it is used for making bromide enlargements, any light allowed to escape from the lamp house might easily fog the paper. Ventilation is secured by a series or rows of holes located at top and bottom, these in the house itself being protected by baffle plates that are in turn perforated with holes so placed that they do not

come opposite those first mentioned, as can be seen by examining Fig. 5 herewith, where the short cross lines show the location of the holes at the ends of the several rows. As shown, the holes in the top of the house extend along the center, while those in the baffle plate just below are arranged along the



THE HOME-MADE PROJECTOR COMPLETE

sides. The location of the ventilation holes at the bottom of the house is shown in the same drawing, while Fig. 6 shows the arrangement of the baffle plate there used. This last drawing also shows, just inside the back of the house, a piece of tin, M, about five inches square. This fits snugly over the brass rod, F, that controls the lamp, and is held closely against the opening by three strips soldered to the inside of the back. This plate covers the opening through

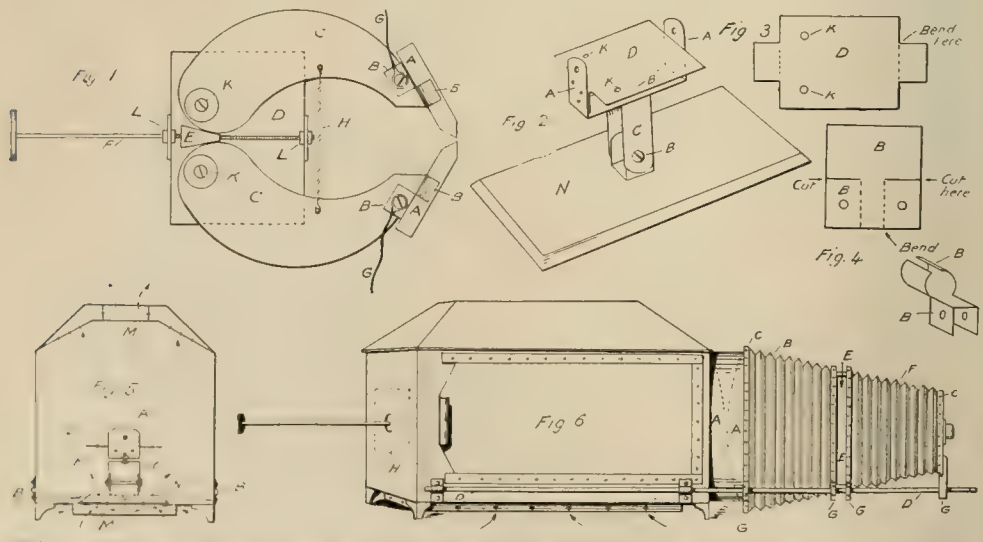


FIG. 1: ARC LAMP—A, A, carbons; B, B, carbon holders; C, C, asbestos board arms; D, base plate of thick galvanized iron; E, brass wedge, threaded; F, brass rod, threaded; G, G, wires to binding posts; H, coil spring to hold arms together; K, K, screws and washers; L, L, brass bushings. FIG. 2: A, A, supports for brass bushings; B, B, screws; C, upright swinging support; D and K as in Fig. 1; N, sliding base. FIG. 3: D and K as in Figs. 1 and 2. FIG. 4: Carbon holder as in Fig. 1. FIG. 5: M, M, baffle plates affording ventilation; B, B, lugs bolted to house to carry three-eighths inch rods supporting bellows and camera front; A, C, D, K, as in Fig. 2. FIG. 6: A, A, condensers in case; B, bellows tacked to wood frames; C, C, tacks; D, three-eighth inch rod; E, slot for slide rack or film holder; F, bellows, lens board and lens from 4x5 camera; G, G, G, G, wood frames for bellows; H, sliding disk to prevent escape of light.

THE HILL HOME

THE WIND MILL

THE BALANCED ROCK

which the rod passes; and, as these strips permit it to move around with the change in position of the rod, no light is allowed to escape at that point. The small wheel or knob at end of this rod not only permits the feeding of the carbons but enables one to move the lamp backward or forward by reason of the sliding base upon which it is supported.

Taking up the construction of the fifteen-ampere arc lamp, the two curved arms, C, C, Fig. 1, were cut from asbestos board about one-quarter of an inch in thickness, this material being used as it is a non-conductor of electricity. These are hinged to the piece of sheet iron, D, in Figs. 1, 2 and 3, by means of the screws and washers, shown at K. The arms, A, A, shown in Fig. 2, carry the bushings shown at L and L in Fig. 1. The bushings accommodating the three-sixteenths inch brass rod already mentioned as used to control the lamp, shown as F in the drawing. This rod is threaded between the two bushings and carries a wedge-shaped piece, E, also threaded, so that the latter moves backward or forward as the rod is turned in either direction to secure the desired separation of the carbon points. The coil spring, H, draws the two arms to-

THE EVENING PRAYER

gether while the forward travel of the wedge, E, as the rod, F, is turned, forces the carbon points apart.

The carbon holders are made of sheet brass, one-thirty-second of an inch in thickness, their construction being shown in Fig. 4. These are fastened to the arms, C, C, with screws that also hold the wires carrying the current. The carbons are simply inserted in the curved portion of the holders as shown, the spring of the material being sufficient to hold them firmly in place. Fig. 2 in the drawing shows the support of this lamp; and, as can be seen, it permits adjustment in any desired direction necessary to center the arc with the lens, this being achieved from the outside by means of the brass rod F. As has been suggested, the base of this support, N in the drawing, slides the full length of the lamp house, its sloping sides sliding under strips of metal fastened along each side of the floor of the house. This is clearly shown in Fig. 3 where the base of the lamp support is shown as N.

The iron lugs, B, B, are of the proper size to firmly hold the three eight-inch iron rods extending along both sides and passing through holes in the sliding frames carrying the bellows and lens board. The condensers came mounted in a brass container that just fits into a square sheet iron box made for their accommodation. This last is bolted to the front of the lamp house with a small stove bolt at each corner. The ends of the bellows are tacked to wooden frames with brass tacks as shown at G, G, G and G.

At E is shown the slot in which is inserted the slide holder or the kit for carrying negatives for enlarging. This last accommodates my 3¼x5½ negatives, and, by placing a film or glass plate negative of this size in position and adjusting position of the light and lens and negative to suit, I can make bromide enlargements of any desired size or reduce my 3¼x5½ negatives to the proper size for lantern slides or even smaller. This greatly adds to the utility of the apparatus and explains why I decided upon condensers of six and one-half inch diameter when smaller ones would have answered for projecting lantern slides only. At a distance of twenty feet this lamp projects a picture about seven feet square and one that is unusually clear and bright. Aside from the cost of the controller and the condensers the material used is rather inexpensive. My entire cash outlay being a trifle less than fifteen dollars.

I find this piece of apparatus a source of great pleasure and entertainment both to my friends and acquaintances as well as to myself. Furthermore, it has proven quite profitable as it has enabled me to turn out no small amount of work in the form of lantern slides and bromide enlargements, work that I would not otherwise have been able to produce.

The most enduring part of art, then, is the conception of the artist, and the embodiment of conception in form and color and their variations constitutes the highest aim of painting. But now from this you must not infer that sublime art is the only art worthy of consideration; nor must you infer that the art of poetic or artistic feeling, or even the art of technical skill, or natural beauty, is to be sneered at.—JOHN C. VAN DYKE.

The Troubles of a Kodak Finisher

By W. Rob Whyte

With Illustrations by the Author

Of course there are finishers and finishers. There is the finisher whose advertising specialty is the shortness of the time in which he undertakes to get your work done. Which is, as every photographer knows, an unscrupulous taking advantage of the impatience and ignorance of photographic processes characteristic of the unsophisticated beginner. A few years ago, in Los Angeles, I saw displayed in a kodak agency window a sign to the effect that they did not finish kodak work in the shortest possible time but in the best possible manner. The result of which latter sort of advertising would be that the better class of amateur photographer would patronize the establishment where the work had some chance of being well done, knowing that, in the former case, the customers would have the better chance of being done. So much for the customer's side of the question.

Now for the finisher's side: The cheap-jack, slip-shod, wash-and-iron-your-shirt-while-you-wait stamp of finisher has some excuse for his methods. The absolutely unreasoning assumptions on the part of average amateurs is simply appalling,—with the result that the unconscientious finisher treats them all alike,

AT LAND'S END—SAN FRANCISCO

and attracts custom by low prices and the promise of "immediately if not sooner" methods—which latter to a certain extent is flattering to the customer who thinks that his work is having some special attention devoted to it, or how otherwise could it be done so rapidly. Many "Average Snap Shotters" have assumed (I was about to use initials only to save space, but that would be too impolite) that it is only the light which comes through the lens that can affect the sensitive film, and that therefore light not coming through the lens will have no effect. I have actually known some who would unroll a length of film in broad daylight to see if there was any picture visible upon it. Others, who know more, will be aware that one-twenty-fifth of a second at f-11 will make a good exposure out of doors, and yet will use the same exposure indoors where the light is five hundred times less, the result of course being something approaching clear glass. Then we meet the amateur who, after perhaps years of experience with a fixed focus camera will be ambitious enough to purchase a really good instrument requiring accurate measurement of distance. Will he do any accurate measurement of distance? Not he! He will either pull out the front to whatever place it was used at last, or having heard that everything is in focus at f-45 with the lens at infinity on the focussing scale, he will take a snap-shot with the camera so arranged. Which usually means that the exposure should have been at least sixteen times longer than it was.

A BIT OF THE EXPOSITION

Are not these tricks enough to dishearten the finisher? Is it any wonder that the finisher who is out to make money rather than pictures puts the work through so as to get the greatest amount of money out of it with the least amount of trouble and expense to himself? "We have done those things which we ought not to have done." Would you like to see a list of them, such as the average amateur could plead guilty to? Then, kindly ask the Editor for his terms for the use of six pages of this magazine to be devoted to such a purpose and I will gladly fill them for you.

What special objection has the beginner to reading the instructions which

are supplied with each camera? Many of these have special instructions printed inside the instrument so as to remind the user every time he starts a new roll of film. What are the instructions there for, except to be read? I wonder how many times a year I get rolls of exposed film which, on development, show a small circle of exposure instead of a full sized rectangle. Is it not obvious that there must not be any solid substance between the film and the lens when an exposure is made? Then why put the film behind instead of in front of the flap in cameras of the Bullseye or Brownie type? For every

SUNLIGHT, SHADOW AND CLOUDS By FORMAN HANNA

camera sold there are ten instruction books available, which cost absolutely nothing, and ten times as many more which cost but a trifle. Roll film costs money, and lots of it. Then, why will not the beginner spend a few cents, or even nothing at all, learn the rudimentary instructions, and save many dollars worth of film? Even a man who shows exceptional intelligence in his daily avocation will take a camera on his vacation trip, knowing nothing about its capabilities, and wonder why most of his exposures are failures. "Oh," I have heard it said, "of course his business is a serious matter; taking snap-shots is only amusement." What is golf but amusement? What is card playing but amusement? One goes automobiling, duck shooting, hiking, for amusement. Talk to any of the men who have taken up these amusements, and you will find that the amount of information they have crammed into their heads is something amazing. And the number of technical terms they have at their tongues' end will make your head swim. But give one of these same men a camera, and he will no more think of informing himself upon its use and

OUTDOOR PORTRAITS

peculiarities than flying to the moon. And why? Because he has been taught for a generation that the whole art of photography consists in button-pressing. And the life's work of the conscientious finisher is to disabuse the minds of the public of this pernicious doctrine.

Every conscientious finisher should educate himself to such a point in his profession that he can, at a glance, detect the exact nature of the defects found in the exposures of his customers, and be able to give them such information as will enable them to avoid the error in future. To quote an instance or two in my own experience. The last exposure on a roll was badly underexposed. I said to my customer, "Don't you remember what I said a few weeks ago; that you cannot take snap-shots after six o'clock at this time of the year?" "However do you know that it was taken after six o'clock; how do you know it was not taken on a dull day?" "Children do not have shadows twenty feet long on a dull day," I said. Of course, this was simply the common or garden variety of observation. Another customer, whose work had been very good, turned in a roll of film very much underexposed. The shadows were short and the contrasts strong enough. So I said to him, "Would you mind taking a camel-hair brush and removing the layer of dust on the front of your lens?" To again another, whose first two exposures on a roll were woefully blurred, I said, "When you make an exposure early in the day, after a cold night, please look at your lens to see if there is any condensation or moisture on it."

The moral of all of which is, "What is worth doing at all is worth doing well," which should apply equally to the Amateur and the Finisher.

Photographing the Trees in Blossom

By John Bieseman

With Illustrations by the Author

Summed up, about all that I have to say on the subject is that one must use orthochromatic plates,—preferably the double-coated kind, and a three-time ray filter or color screen. But that is no way to write an article; in fact, it would not be an article, just a three-line paragraph that you would all read over and promptly forget. Or, if you did remember, you would want to know just why, and just how, and a lot of other details.

The ordinary plate is practically color blind, except as to blue, and by the time the darks, the shadows, have been properly exposed, the blues have received enough exposure to come white in the print. The green that contain considerable blue come fairly well, the yellows are more or less too dark as they are inclined to red, while the ordinary plate translates red as black, being practically stone blind to that color. The orthochromatic plate, while much more sensitive to red and yellow, is still what may be called supersensitive to the blues, so that for the best effects, a ray filter must be used to hold back this last color in order that the reds and yellows may assert themselves. Orthochromatic plates, speaking of them as a class, are not equally sensitive to all

LILAC IN BLOSSOM—May 7th, 8 A. M., stop f-22. In first picture sun was shining from the right and one second exposure was given. The other was made at same hour three days later with heavy clouds over sun and sky, six seconds exposure being given. The advantage of soft lighting is apparent.

three of the primary colors but they are a great improvement over the ordinary ones. By holding back the blues and assisting the yellows, and to a slight extent the reds, by using an orange or orange-yellow filter, a very close approach is made to true color value rendition, particularly if the exposure is not cut too short. Where full sensitiveness to red is desired, one should employ a red-sensitive plate, but these last are a refinement intended mainly for special subjects and the three-color process. Their extreme sensitiveness to red makes them quite difficult of manipulation, in fact, the regular orthochromatic plate must be handled quite carefully, as to the light from the developing lamp, or fog or veiling will result.

As orthochromatic emulsions are coated somewhat thinner than are ordinary ones, double-coated plates are advisable. The slower emulsion with which the glass is first coated not only serves the purpose of decreasing the danger from halation, but it prevents the blocking up of the lighter tones, causing them to print white along with the high lights, when development is prolonged a little in order to secure detail in the shadows. The double-coated plate, by reason of this last, permits one to give the full exposure required for the best color rendition, without the same danger of a poor negative that a single-coated plate might invite.

I would advise the user of orthochromatic plates to practice the simple matter of loading his holders in total darkness. It is a knack that is quite easily acquired if one will but remember that the plates are always packed in a particular order in the box, the first one emulsion side down, the next up, and so on. When in doubt, the tip of the tongue, not too damp, can be touched to the plate near the edge. The gloss of the glass side is easily distinguished while the emulsion side will be inclined to adhere.

In developing, the light should be turned down low and a cardboard cover placed over the tray. If the lamp is so turned that its rays shine against a wall or card and the light by which developing is done is reflected and not direct, an added degree of safety is secured. Also, it is well to remember that several quick flashes of the negative before the light is not so likely to cause fog as is a long exposure to the ruby light. No light is absolutely safe, all would fog an orthochromatic plate if given time, but a light quite satisfactory to use may be employed if it is allowed to fall upon the plate for only a brief period necessary for an occasional determination of the progress of development. A piece of cardboard, an old mount cut the proper size, is not difficult to hold over the tray as rocking proceeds, and an occasional removal for brief inspection does no harm if the light is weakened by being turned down or through being reflected rather than direct. It should also be remembered that the plate is subject to fog from too strong a light even after development is completed; therefore, care in rinsing and fixing is also necessary. Once fixed they are safe. Orthochromatic plates are somewhat inclined to give contrasty negatives and for that reason the makers' instructions as to a more dilute developer should be given all heed. Using soft paper is also advisable, as tending to decrease excessive contrast in the print.

To photograph trees or shrubs in bloom, a day should be selected when

PEAR IN BLOSSOM—April 24th, 5:15 P. M. (sunset), stop f-32, exposure four seconds. The first printed on hard paper, the other on soft, the better quality of the latter print being obvious.

PEACH AND SERVICE BERRY IN BLOSSOM—The first, made April 27th, 10:30 A. M., with sun back of subject, stop f-32, exposure one second. The other, made April 25th, 5:15 P. M., sun setting, stop f-22, exposure one second. Both negatives are thin and both should have had two or three seconds exposure.

an occasional cloud or a dull sky assures absence of full sunlight at the moment of exposure. Also, an hour when the wind is not blowing, is demanded. In some sections of the country the early and late hours of the day are generally quiet as to atmosphere, while in some localities this does not hold good. Each particular subject will generally suggest its own best viewpoint; but, when possible, select one that shows the subject about two-thirds in light and the rest somewhat shaded. Even when the sun is obscured there is generally a stronger light from one part of the sky and this is particularly the case when the sun is obscured by passing clouds. In such case the sky opposite may be

DUKE CHERRY IN BLOSSOM—April 27th, 3:30 P. M., stop f-45, exposure four seconds. Blue sky with sun at right but light not glaring at this season of year.

clear and the direct sunlight reflected therefrom be quite intense in itself, although of course not approaching the brilliancy of direct sunlight on the object itself.

Focussing should be carefully done, as nothing is quite so objectionable as having some of the near blossoms unsharp. For this latter reason one should avoid long or straggling branches extending towards the camera as it will be found almost impossible to bring them into focus. A stop ranging from f-16 to f-45 will be required, depending upon the distance at which the camera is placed, and of course to some extent upon the focal length of the lens. The background should also have consideration. The bare ground or grassy slope of a hillside is satisfactory, other trees at a slight distance and kept subdued by being out of focus, are not objectionable. The blue of the sky answers admirably if the color screen is deep enough to render it not too light, and the side of a building is fairly satisfactory if the entire building or such a portion as does not look too fragmental, can be included. If white clouds fill the sky the result will be unsatisfactory but dark rain clouds give an excellent background. Double-coated plates should always be used for trees coming against the sky.

To photograph a branch or spray of blossoms the procedure is much the same except that it is generally best to attach a strong cord and by that means draw the limb down and fasten it near the ground where it is more nearly on a plane with the lens, an iron or wooden peg being convenient for the purpose. Aim to keep the limb or spray in such a position that each end is equidistant from the lens. This permits the use of a stop large enough to leave the background out of focus and therefore less distracting. If the background, after carefully focussing to get all the blossoms sharp, appears too spotted and broken up, a change of position may remedy the difficulty. Sometimes it is

NATIVE CRABAPPLE BLOSSOMS—May 7th and 11th, 5:30 P. M. (sun below horizon), stop f-16, exposure 2 seconds. Branch was bent down and staked to ground giving grass as out-of-focus background.

advisable to use a cloth or similar ground, supported by being fastened to other limbs of the tree. If a slight distance behind the limb is being photographed, almost any material of a neutral tint will suffice, as it can be kept out of focus so that marks or folds will not show as such. I have used old burlap cloth large sheets of wrapping paper, even the back of an ordinary kitchen rug. The back of ordinary linoleum is a good shade and texture but I have never used it for flowers. Of course, as in the case of trees, no motion should be permitted, and this holds good with all floral subjects. A few examples of my work are shown herewith, examples that seem best calculated to help through the data given with them. They are all made on double-coated orthochromatic plates and I might add that even those not so designated might have been given a little longer exposure without detrimental effect; in fact, to their advantage. In these illustrations I have tried to show the effect of too short an exposure, the results of using a soft printing paper, and the advantages of selecting a soft lighting. These examples are not put forward as being models of excellence but as possible aids to the reader who may be taking up this line of work as the time of blossoms comes around.

Freaks and Flukes

By William A. Caldwell

With Illustrations by the Author

I have been taking pictures for—well a good many years, but I am occasionally made to feel that I am still in the primary class, if indeed I have yet emerged from the kindergarten. The modern camera and accessories have now, perhaps, reached a stage as nearly fool-proof as possible, and yet there are still loopholes, here and there, through which the unwary may find passage into the great wilderness of Failure, and I am going to mention a few choice routes which I have stumbled into and demonstrated to be passable.

To go back a little, however, I began taking pictures when the printed instructions gauged everything by the wet plate standard. We are told, for instance, that the dry plate was about so many times more rapid than the wet plate, and this was the sole guide given for timing the exposure.

My first camera was a mysterious combination known as the Tourograph. It consisted of a box within a box, the inner one containing, when fully charged and ready for action, twelve 5x8 dry plates and a ground glass. The operator first lifted this inner box out and adjusted it on top of the outer one, by slipping the projecting brass strips on the lower edge of the former into slots provided

BASKET BALL TEAM—DEAF BOYS. CALIFORNIA SCHOOL FOR THE DEAF AND THE BLIND

THREE PURITAN MAIDS

A HALLOWE'EN WITCH

for them. The structure, it will be noted, was then two stories in height; and, although I cannot, for the life of me, see now how it was possible, it was light tight. The operator then drew out a brass strip from under compartment No. 1 in the plate box, to release the ground glass, being careful to first run forward the plate carriage in the box below to receive it, being careful also to have his left hand inserted in the light tight bag at the back to receive the glass and lower it gently into the carriage. He then swung open the back (though of course, in handling the ground glass, he may have done this already), and focussed the scene properly. This done, he carefully noted the number indicated on a scale on the side of the tramway aforesaid, wheeled back the carriage, elevated the ground glass to its quarters, wheeled the carriage back to the compartment of the next unexposed plate and dropped it into the carriage. He then placed the plate in focus by aid of the mark on the register and on his memory (if it was working), exposed the plate, wheeled it home and did the elevator act once more. Each plate was held in place by a brass strip which was drawn out when the plate was wanted, and slipped back after its return home.

I got fairly expert in manipulating this monstrosity, but the detail of timing the plates was a dark and impenetrable mystery to me. Since I knew nothing whatever about wet plates, it will be seen that any action based on a comparison with the time required for that sort of plate was of no value to me. However, I launched forth hopefully. My first subject was a gray donkey. I was not at that time gray myself, but that is irrelevant. I placed this placid creature on a hillside in the blazing sunlight, where he at once showed his indifference to fate by going sound asleep.

After deep thought, I decided that two and a half minutes would be time enough, and accordingly I allotted that period for "taking" the donkey. It may be that the exposure melted the film. At any rate the most persistent efforts at development, with the aid of all the chemicals at hand, failed to

bring out anything resembling a donkey—so far as the plate was concerned. I often recall that scene and wish I had a snapshot of it.

Time has rolled on since then, as time has a habit of doing. I have owned several cameras and have learned many things about taking pictures, things that I did not know when I turned my battery on the donkey, but I still find myself floored from time to time by unexpected and at times inexplicable defects and I will list three that have given me pause within the past few years. It may be that a detailed account of them may help some other struggler. I suggest that the patient reader, if he has had the patience to read thus far, study each of these problems carefully and see if he can tell, before reading the explanation, just wherein lay my error in each instance.

I should state in the beginning that I usually work with plates. I recognize the advantages of films, but I like plates and seldom used anything else in my 4x5 Eastman plate camera, though it is constructed so that films may be used if desired. I almost invariably use a tank for development.

Defect No. 1: I noticed that occasionally my negatives had faint streaks running across them. I studied each step of the development carefully. The plates were lowered into the perfectly dry tank, the developer poured in, the tank reversed once or twice and then left for the specified time, 15 minutes. They were then washed under the tap and placed in the hypo bath. For this part of the process I use an 8x10 tray, and fix four plates at a time, face up. I have

DEFECT NO. 1

DEFECT NO. 2

DEFECT NO. 3

now given sufficient data for the reader to decide, if he can, wherein my error lay and how my error caused the streaks.

Defect No. 2: Like the preceding freak, another trouble appeared occasionally. If these things had occurred invariably and on all my plates, I don't know that it would have been any more or less perplexing, but as a matter of fact they were sporadic and intermittent. In the instance now under consideration, I found that at times there was a strip across one end of the negative that was not developed equally with the rest of the plate. My first impression naturally was that I had not made the required quantity of developer, so next time I was careful to see that I did not err in this respect, but notwithstanding all my care, this semi-developed strip would occasionally be in evi-

dence, the strange thing to me being that it was partially developed, the difference in intensity frequently being only just enough to make it apparent. Moreover it was not always there. What caused it?

Defect No. 3: The two named above I finally ran to cover and put out of commission, but this third one fairly baffled me for a long time. It was this: Out of any batch of plates developed, there would frequently, but not invariably, be one that had in one corner a defect resembling a "tear-drop". I supposed at first that this was what it really was, and as it usually appeared in such a place as not to affect the general excellence of the negative otherwise, I gave up worrying about it. I ultimately became convinced that it was a defect in the plates. I felt sure it was not my fault in the drying of the plates, when

AT THE RUSTIC FENCE

READING RAISED PRINT

"tear-drops" usually appear, because I always dry my plates standing on one corner, while this spot always extended at right angles to the side, and always was in one place. One day a sky was spoiled by this blemish, and I was moved to exclaim, with Lady Macbeth, "Out, damned spot," but knew, from long experience, that it would take a more powerful exorcism than that to accompish anything in photography. In despair I gathered up a batch of these lachrymose specimens and betook me to the dealer's, determined to have them replaced with perfect plates, at least. The man with whom I deal is a reasonable being and he was disposed to sympathize with me, but he couldn't be made to believe that the fault was in the plates. Asking me to bring my camera down, he took a picture with it to see if, by any fluke, there was anything in the box that could make the spot.

Nothing doing.

He asked for more time to consider the matter, but when I went back to him, he was sure of only one thing and that was what he was sure of in the

first place, namely, that the fault was not in the plates. He asked how I developed my plates and I told him I used one of the plate tanks that he had on sale. He went and got one, opened it up and studied it.

Then all of a sudden we stumbled on the solution of the mystery. I am inclined to think I arrived first, but it didn't take him long to overtake me.

Taking these three defects in their order: My mistake in the first instance lay in pouring the developer into the tank *after* the plates were in it. The solution, running through the holes in the end of the rack that holds the plates, made the streaks across the length of the plates. It was of course remedied by first filling the tank to the required height and then lowering the plate-rack and contents into it.

The strip of half-developed film across the end of the plate was caused by my carelessly putting the wrong end of the plate-rack into the tank first. That end had a half inch space between the end of the rack and the end of the plates, this being enough to lift the other end of the plates slightly above the level of the developer. I am now always careful to get the ends of the plates as near to the bottom of the tank as possible.

In the last case, my dealer friend and I found that the rack has a movable end, to adapt it to plates of different sizes, and this end can be moved by pressing a little oblong strip of zinc at one side. And this strip of zinc, about three-eighths of an inch long, by being pressed in a little too much, had partially interfered with the development at that point.

Really, these things seem so simple, when once the mystery is solved, that one is not disposed to point to them with pride. It is not in any such spirit that I have detailed them, the reader may be sure.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

USING TWO RAY FILTERS: Practically every photographer, and particularly those located here in California, are aware of the perplexing character of distant mountains as subjects for their photographic skill. With an ordinary camera, that portion of the view lying more than a mile away is rarely rendered in a satisfactory manner, although a larger camera with the necessary longer focus lens will sometimes give fairly good results, particularly if a ray filter and color sensitive plates be used. I myself have tried for the past ten years to get a satisfactory picture of Mt. Shasta from this point, about ninety miles distant, without achieving success until a few days ago. The picture reproduced herewith was made with a D Set, Bausch & Lomb Zeiss Protar, using the sixteen and one-half inch focus single lens. Adding a five times Bausch & Lomb ray filter in front of the lens, examination of the focussing

screen showed that the light on the distant mountain was not sufficiently corrected, and an exposure so made gave only a fair rendition thereof, a picture in no way satisfactory, as the snow covered mountains were quite weak in the resultant print. Placing an additional three times ray filter behind the lens, the ground glass showed the lighting on the distant mountains about the same as that on the nearby building. Stopping the lens down to what the shutter indicated was f-32 for the single lens being used, an exposure of eleven seconds was given on a Wratten & Wainwright panchromatic plate. These plates are sensitive to all colors and should be developed in total darkness. Using the formula recommended, I developed for five minutes and secured the result indicated by the print reproduced herewith. I might explain that this picture is not presented as one having artistic merit, but those who have tried such subjects will appreciate the clearness of the distant snow-capped mountain when made in connection with a strong foreground of the character shown.—B. F. Loomis, California.

MEASURING OUT SOLUTIONS: The ordinary four-ounce graduate is not only of an awkward shape but is quite susceptible to damage. In place of it I use a wide mouthed four-ounce bottle such as the quarter-dollars size Horlick's malted milk flask. This holds enough developer for a post card or 4½x6½ plate and is also useful in measuring out water in making up a hypo solution. In this bottle I keep a piece of three-eighths inch diameter glass tube that has had its lower end tapered to one-eighth inch and its upper end made smooth and given a slight lip. This tube I use for measuring out Rodinal, Kodal, Azol, etc., much as one uses a pen filler except that I control the flow by holding my finger over the top of the tube instead of using a rubber bulb. The tapered end prevents solution running out when lifted as would be the case were the full diameter maintained. A tube of this kind will hold a dram or so and one can easily scratch a line at various distances to indicate certain quantities

required of different solutions for making up a given developer. To those who prefer to spend more time with their camera than in the dark room, the above suggestion may be useful.—"Liverpool," England.

A NON-POISONOUS DEVELOPER: I recently found the following formula in my scrapbook in my chemical room; I do not know where I clipped it, so cannot give credit. It is as follows:

Water	10 ounces
Edinol	20 grains
Hydrochinone	20 grains
Sulphite soda, anhydrous	250 grains
Potassium carbonate	450 grains
Bromide potassium, ten per cent sol	20 drops
Oxalic acid, ten per cent sol	20 drops

For use on paper, dilute to forty ounces. I tried this on some daylight enlargements made on Argo paper and it worked fine. As it is non-poisonous, some other worker might like it.—E. G. Berkey, Indiana.

BARDWELL'S ACETONE-PYRO DEVELOPER: Three stock solutions are required, made up as follows: No. 1, one hundred and twenty grains of metabisulphite of potash and one ounce of pyro dissolved in twenty ounces of water. No. 2, a saturated solution of sodium sulphite crystals. No. 3, one ounce of acetone in seven ounces of water. For use, mix in the order given: Water, four ounces; No. 1, one ounce; No. 2, one ounce; No. 3, four ounces. Two or three negatives may be developed in turn in one solution but to assure uniformity the use of a fresh solution for each plate is advised.—T. E. P., California.

IN CASE OF POISON: The usual list of antidotes is rather long, as it specifies the proper one for various poisons, and the list is rarely at hand when wanted. It might be well to remember, or even to post up on a card in the dark room, the following: A teaspoonful of salt and one of ground mustard, well stirred into a glass of water, will cause vomiting in one minute. A poison that is dangerous in a shorter time than it takes to mix up and administer this is hardly amenable to any treatment that necessitates a longer delay.—C. D. E., Washington.

DEVELOPER STAINS: When prints on gaslight paper have not had the developer well rinsed from them, the hypo causes a brown or yellow stain to appear. It is generally supposed that it was impossible to get rid of these stains, but I have found that they can be removed as follows: After fixing, wash for half an hour and then apply hydrochloric acid with a camel's hair brush to the stain until it disappears. Wash again for half an hour and then dry.—F. S. Dotterweich, New York.

DRYING NEGATIVES QUICKLY: After fixing and washing, place in a twenty-five per cent solution of formaline for three minutes and then transfer to a tray containing water at almost the boiling point for a like length of time or until well heated. Surface water blotted off, the negative will dry in a surprisingly short time.—E. D. C., Vermont.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, March, 1917 No. 3

Our Frontispiece This Month

Aside from its interest as an example of masculine portraiture, our frontispiece this month has a greater one, as portraying a noble character. In sending the photograph Mr. Simson writes:

"The Colonel has always been a great admirer and generous patron of photography, having in his possession a large and interesting collection of photographs dating from the Daguerrian period to the present time. To photograph him, while a great privilege is still a greater pleasure, as he always brings into the studio an atmosphere of genial warmth and encouragement. His smile is a great combination of appreciation and kindness.

"He has just celebrated his eightieth birthday, his clear skin and bright eyes denoting perfect health. Few men at forty have a more erect carriage or a more vigorous step. All his faculties are eagle-like in their keenness; he looks the soldier, firm and resolute—but a human and generous foe, and his personality carries the imagination back to the Civil War. He was severely wounded in the shoulder at the battle of Irish Bend but bears the effects of the injury with the fortitude and dignity that is in keeping with the grandeur of character that bitter struggle developed in men of the type of Lincoln.

"Although coming from sterling stock, the Colonel belongs to a nobler aristocracy than that of birth; the aristocracy of character, intellect and worth. He is beloved by all who know him for his pleasing personality, his kind simplicity, his unswerving integrity and his upright character. He is indeed a true American, qualified to grace the highest seat within the bestowal of his fellow men, and capable of upholding its dignity to the full by his high standard of justice and humanity."

A Camera "Marvel"

Our readers will no doubt be interested in learning that there has been on the market for several years, a camera that enables one, quoting from the description, "to take a group horizontally on a plate (whereby you're getting one-third more picture thereon)." This surprising capability is achieved by means of a wonderful reversible plate holder. The advertiser of this device very modestly explains that "As simple as it may seem, it nevertheless required brains and efforts of the most talented and skilled workmen to be had in this country". It has "a well formed groove (on two sides of the holder) which is cleverly arranged to fit a metal tongue that is hinged to the base of the camera frame". Still more surprising is the behavior of the focussing screen. This, to again quote from the description, "is so arranged that when a plate is being placed in position for an exposure it (the focussing screen) is gently forced back into a secondary position where it remains until the plate has been removed, when it automatically springs back into its original position and again ready to use". We refrain from giving the name of this wonderful camera through consideration of our own advertisers who are seeming less enthusiastic in the matter of their goods. This product of the "brains and efforts of the most talented and skilled workmen" can, however, be located by consulting the advertising pages of several of those justly famed publications that seem to be such profit-

able advertising mediums for cheap jewelry, lessons in lion taming, and the like. No doubt a camera having such wonderful capabilities strongly appeals to the same class of readers. Photographic material that cannot be profitably advertised in a photographic magazine can well be left to the enjoyment of those who find, in such publications, the necessary stimulus for their mental equipment in childish missing letter puzzles and a gratifying outlet for their spare cash in the purchase of surprise packages, detective badges, bartenders' guides and the like.

The Cradling of the Kodak

Our readers know, in a more or less definite way, that photography as practiced by the amateur, owes its existence almost entirely to the efforts of George Eastman in devising and perfecting a camera suitable for the purpose, a camera that removed from photography the intricate manipulative troubles that beset the practice at the time that the Kodak was placed upon the market. But, as the history of amateur photography is so closely associated with that of the Kodak, and the history of the latter has heretofore been denied us, B. C. Forbes, in his series, "Men Who Are Making America", now running in *Leslie's,* devotes a chapter to George Eastman that will be found most interesting and instructive. Mr. Forbes begins:

> "The story of the birth and the cradling of the Kodak has never before been told.
>
> "It is a story containing all the elements of poverty and pluck, of plodding and perseverance, of hope and despair. Also these other fitting elements: a widowed mother, broken in health, suddenly plunged into financial misfortunes and a young son determined to overcome the necessity for her keeping a boarding house. The picture gives a glimpse of the youth working all day as a clerk and then working and experimenting in a little improvised workshop all night, snatching an hour's sleep now and again while his chemicals were cooking, for several nights on end his bed knowing him not.
>
> "Then came sufficient success to warrant giving up his clerical position and providing a modest home. Fame, even, came to the young inventor. His photographic plates were recognized as the best the world had ever produced. He branched out as a manufacturer. Then black, inexplicable, unfathomable failure. His formula, the sensation of the photographic world, refused to work. Sleepless investigation and experimentation were of no avail.
>
> "How defeat did not daunt the young man, how his resourcefulness triumphed, crowns the story, the story of George Eastman, the man who made us all photographers, the man whose ingenuity has made America the fountainhead of photographic supplies for every nation on earth.
>
> "Now let us tell the story in detail."

And in this story, appearing in *Leslie's,* the issue for February eighth last, should be read by every photographer in the land.

Mr. Mackness Here

G. W. Mackness, the genial representative of Burke & James, Incorporated, Chicago, is again on the Coast, enthusiastic as ever concerning the latest additions to the excellent and extensive line carried by his house. He reports business excellent, and the prospects for the coming season the best in years.

Civilization, which is but the gradual conversion of animal man into human man, has come about through an art even more than through religion, law and science.—GALSWORTHY.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Single Lenses For Photography

F. W. Etteridge, in a recent issue of *Photography,* has a very useful and extensive article on this subject, a portion of which is here transcribed. While the article as a whole gives considerable encouragement to the users of single lenses, a great deal more might be said in their favor. For example: The value of minus lenses in modifying the focus of the ordinary camera lenses is not referred to, nor the use of similar lenses to get telephotographic effects. It is often quite possible to insert a minus spectacle lens between the parts of a compound lens in order to lengthen the focus without materially disturbing the corrections. Where I have had any use of modification of this kind, it has given me excellent results; and again, the use of a minus lens to produce a telephotographic effect is easily carried out and illustrations of it were given by me in my last article in CAMERA CRAFT on "How to Make Use of a Reflex Camera". Mr. Etteridge says:

All the "makers' singles" * * * have been corrected lenses. Some photographers, liking the very soft or diffused effect given by the entirely uncorrected lens, have used singles of this kind; but they have usually been nothing more or less than spectacle glasses, which can be bought for a very few cents. There is no reason why anything more expensive than these should be got, as far as the glasses themselves are concerned, since a single lens is the same thing, whether it is to be used in a camera or in a pair of pince-nez. The only thing to note is that for photography the lens must be a positive and not a negative one; that is to say, it must be a magnifying glass, as used for the aged and for long-sighted persons, and not a reducing glass, such as we find in spectacles intended to correct short sight.

There were photographers, however, who were glad to pay extra for the convenience of having such lenses in a proper mount, and to meet their requirements "casket" sets of uncorrected lenses were put on the market. These consisted of a suitable mount with diaphragms and a number of single lenses in cells, any of which could be screwed into the mount. In some cases an extra lens was provided, which was inserted for focussing and withdrawn before exposure, thus allowing for the difference between the visual and the actinic focus. Corrected single lenses have also been supplied in "casket" sets, for use either singly or in combination with one another.

On the subject of extemporized single lenses there is not much that need be written. The commonest case is that of the photographer who has a rapid rectilinear or some double form of anastigmat, and unscrews half the combination when he requires a longer focus than usual. As is well known, the half of a rapid rectilinear makes a very good single lens. It is usual to employ the back half, as the other is more readily removed; and there is a slightly improved definition when the half lens is used in the ordinary position of the back rather than of the front lens—that is to say, with its convex surface turned towards the plate. The front half of a portrait lens can be used in the same way.

Hitherto we have been dealing with the various single lenses which are at the photographer's disposal; we have not yet considered the purposes to which they can be put, or what it is that we are supposed to gain by using them. It may be well to start by pointing out the purposes for which they are not fitted, or, at least, not so well fitted as more elaborate pattern, although where rigid economy has to be practised a single lens may be used as a lens of all work.

Hand camera photography is perhaps what is least suitable for them. The single lens, unless one is satisfied with a very woolly form of definition, is a slow lens. In its corrected form f-11 is about the largest aper-

ture which would be regarded as giving satisfactory definition with it, so that if one can afford something better it is wise to get it, if hand camera work is to be done. A great many of the lower-priced hand cameras are, however, fitted with single lenses for economical reasons.

All other forms of photography in which rapidity is important are better carried on with lenses which work at larger apertures than any singles. Since a single lens, with the exception of the Dallmeyer rectilinear landscape, cannot be made absolutely non-distorting, single lenses are not used for architectural work to any extent, or for copying or other work where any curvature of straight lines near the edges of the field would be an objection. In many instances, however, the demands made upon the lens in this direction are so slight, comparatively speaking, that the single lens can be used without any fear of distortion being detected. We have two architectural interiors, churches with lofty columns, which were obtained with the half lens of a Protar, in which no distortion can be recognized, however critically the negatives are examined.

The last class of work that need be quoted as being unsuitable for lenses of this character is that which includes a wide angle. In this the double combination with the stop between the two is always used; a single lens employed at a wide angle is working in its least effective manner.

It will be seen that these leave a wide area in which the single lens may be used, and it should be emphasized that in the work which is to be described it is not advocated merely on the ground of cheapness, although it will always have this merit. It has other good qualities which make it very suitable.

Single lenses are often called "landscape lenses", which is sufficient indication that they can be employed for subjects of that kind. In landscape work extreme rapidity is of no great importance; the subjects are generally well illuminated, and seldom have any parts near at hand in rapid motion. Any slight curvature given to the straight lines of the subject would also be sure to go unnoticed in such work. The drawbacks which accompany the use of a single lens do not therefore apply. On the other hand, landscape photography is a class in which a brilliant image, free from anything approaching general haze, is valuable, and it is in this direction that the single lens scores. Just why this is will call for a word or two of explanation.

Although in any lens with properly polished surfaces the largest proportion of the light falling upon it is regularly refracted, and goes to form the image on the ground-glass or plate, all the light cannot by any possibility do so. At every surface where the light passes from air to glass, or from glass to air, some of it is reflected. That which is reflected from the front surface of the lens is merely sent back towards the subject, and can do no harm. But that which passes into the lens and is reflected back from the inner surface of the glass does not quite follow the same lines. Much of it passes out at the front, and so becomes harmless, but some of it is reflected again at the front surface and so is sent towards the camera. Some passes into the camera, and some undergoes a third reflection at the back surface, and so on.

In the case of a single lens this is all that happens. Most of the light goes to form the image, a little is reflected back towards the subject, and an inappreciably small proportion enters the camera after two or more reflections, and since this does not fall or come to a focus where the light forming the image falls, but is to some extent scattered or diffused, the image is to that extent slightly fogged, or less brilliant than it should be. This scattered light, however, in the case of the single lens is so slight as to be negligible.

When we have a lens built up of a number of glasses separated by air spaces, the number of reflecting surfaces is increased. It is four in a rapid rectilinear, six in many lenses, eight, or even ten, in some. As some light is reflected at each, both as it enters the camera and after it has been reflected back, it will be evident at once that the proportion of such scattered light, as compared with the light which goes through to form the image, must rapidly increase with the increased number of surfaces. Moreover, a concave mirror will itself form an image, so that if the light after being reflected from one of the interior surfaces of the lens falls on a concave surface of glass-air, it is possible that an image of the reflecting surface of the lens itself may be formed on the plate. Such images are often seen, and are called flare spots. When they are not seen, it is

often because the maker has designed his lens so that its curves do not fall so as to form such an image: but it does not follow that the reflected light no longer reaches the plate. It does reach it; but, instead of doing so in one circular spot, it is distributed over the whole of the plate. It is no longer a halo or flare-spot, but flare. The result is that the negative is not so clean and bright as it would be were there no flare.

This is not an imaginary state of things. It actually exists, more or less, with all lenses. By skilful design the optician may so far suppress the false images that the lens works without sign of them, and the general scattered light due to flare may be worse with one lens than with another, although both may have the same number of glass-air surfaces. But, broadly speaking, the more complex the construction of the lens in this respect, the less bright and free from fog will be the image which it will give. So that in general clarity of the image, the single lens has an advantage; as, indeed, one can generally see plainly enough if the two are compared.

Another aspect of the same thing is seen when we come to deal with subjects which are very prone to reveal any flare which a lens may possess. Such objects are those in which there is a small, well-defined high light of great relative power, and an extensive area of deep shadow. Some of the finest lenses that have been made will show a flare-spot or ghost-image if tested on such a subject. The view being focussed, the head and focussing screen are well covered up to exclude as much extraneous light as possible, and the camera is then moved about a little. The chances are that in some part of the shadow a faint, or even a strong, ghost image of the light will be seen. There is a very much less likelihood of this showing itself with a single lens than with a more elaborate pattern.

The state of things just described is precisely that of the subjects met with by the night photographer. Streets and buildings only feebly illuminated themselves, but with powerful artificial lights in the field of view, show up ghost images directly. They are often to be detected even in successful night pictures, while they are responsible for many wasted plates at this work. A single lens is, therefore, the best that can be used for night photography and similar subjects, and is that which is employed by most well known workers in this direction.

In addition to brightness of the image and freedom from flare-spots or "ghosts", the single lens is very popular for pictorial work generally, and especially for portraiture; because of the character of the definition which it will give, especially when it is used at a larger aperture than that needed to give a sharp picture over the whole of the plate. In this respect the uncorrected lens gives a very much more blurry picture than the corrected one; although even the uncorrected lens can be made to yield a perfectly sharp picture if it is stopped down far enough.

For landscape work it is probable that most of those who read *Photography* will prefer to use the single lens stopped down sufficiently to enable it to give a sharp picture, although there may be some to whom even the uncorrected lens at large aperture will appeal. But for portrait work, as for example for large heads, the single lens opened out has a character of definition which will appeal to many, who are not at all "fuzzy-ists" in the ordinary course of things. The amateur who has a half-plate rectilinear, for instance, which is a lens that can now be bought second-hand for a few cents, will find that in one of its combinations, used with a stop as large as the glasses themselves, he has an excellent lens for quarter-plate heads. Without being aggressively blurry, the definition will have just enough softness to do away with any need for retouching.

For large work, such as whole-plate heads, etc., large single lenses are used in the same way. They can sometimes be bought, unmounted, quite cheaply; but a second-hand R. R. is usually the easiest way of obtaining one. It is recognized that in this work there is a distinct gain in quality in using a lens of large diameter, and the single lens enables us to do this at little cost.

If the single lens in use is one which is entirely uncorrected—a mere spectacle glass, in fact—its chemical and visual foci, as we have seen, will not coincide. It might be thought that, as this form of lens is used because good definition is not required, this is immaterial; but in practise it will be found that this is not so. However diffused we may wish to have the picture, we are sure either to desire to have it equally diffused

all over, or else to have the sharpest definition in some part of our own selection, and not merely at haphazard. Now unless while we are focussing we can see the definition distributed as it will be in the negative, we cannot arrange to have the sharpness just where we wish it.

With an uncorrected lens, the photographic image is sharpest at a point about one-fiftieth of the focal length nearer to the lens than the visual image. So that after focussing, the ground-glass and lens must be brought nearer to each other by this amount to secure the same definition in the negative as is seen on the screen.

Another way of doing this is to insert a supplementary lens for focussing, and then to remove it before exposing the plate. The effect of the supplementary lens must be very slight; it must be almost plain glass. Instead of it, a piece of perfectly plain glass equal in thickness to the fiftieth of the focus may be inserted between the lens and the plate after focussing. This will lengthen the focus by approximately its own thickness, and so bring the chemical focus to the position occupied by the visual focus. If an uncorrected lens were always used, it would no doubt be best to alter the register of the focussing screen, so that the plates in the dark slides were the required distance nearer to the lens than the surface of the ground-glass. Strictly speaking, it is not a fiftieth of the focus of the lens, but a fiftieth of the focal distance used for the exposure—one may call it a fiftieth of the camera extension. But it will be near enough in almost all practical work to regard it as a fiftieth of the equivalent focus or focal length of the lens, since one is not likely to use a single lens at any great departure from this.

There remains to be mentioned the diaphragm or stop to be used. We have seen that, except when diffusion of focus is required, the single lens requires stopping down more than other forms. If the half-lens is being used, we must remember that the engraved F numbers of the stops, if any, no longer hold good. We can find the difference easily enough by noting to what extent the size of the image of some fairly distant object is increased, by using the half instead of the whole lens; and then, having found this, the F numbers are increased in exactly the same proportion.

If the lens is an unmounted one, and it is to be fitted with a home-made stop, the mount should be arranged to carry the lens with its convex side towards the plate. The stop may be fixed on the front of the lens at a distance from it equal to the diameter of the glass or a little more. A simple and easily constructed fitting is one on the lines of the early lens described above. The lens is given a hood of the length necessary, and on this hood one or more little cardboard pill boxes or caps are made to fit, each pierced in the center with a hole of suitable diameter. In this way we can vary the stop merely by changing one cap for another. For portraiture a stop very little smaller than the lens itself may be fitted; but where good definition over the whole of the plate is required, the diameter of the stop should not be larger than about one-sixteenth the focus of the lens. This and another one of half the diameter will give us f-16 and f-32, which will usually be found sufficient for all practical purposes.

If the full advantage of the power of the single lens to give a brilliant image is to be obtained, care must be taken to avoid scattered light. Any cardboard fittings must be given a coat of dead black varnish, and the ground edges of the unmounted lens should be treated in the same way. If the lens is used in a mount from which another lens has been removed, any bright metal on the threads of the screw must be covered up with a tube of blackened card or in some similar manner.

From what has been written it will be seen that for the stand camera worker, at any rate, the single lens has a large field of utility; in some cases which have been mentioned it is actually superior to forms costing many times as much, while for all-round work, if it can be stopped down, it will be very serviceable. Perhaps some who already have such lenses, bought for reasons of economy, may be led to regard them in future less in the light of necessary evils and more as thoroughly trustworthy, reliable, and useful tools.

Illinois College of Photography

The management of the Colleges has recently purchased two safes in which the lenses used in both the photographic and photo-engraving departments are to be stored when not in use.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

The Wide Angle Lens

There seems to me to be a lot of misconception as to the falsity of results obtained with a wide angle lens. The thing can be argued in a number of ways, and it would take pages to exhaust these several contentions. But let us look at it in one particular way, one that is but rarely considered. When we stand in a roadway that extends straight ahead for some distance and look at the scene presented we are really using our eyes as a long focus lens taking in only or mainly the central portion of the scene before us. Quite obviously a portrayal of the scene, to satisfy the mental impression, the memory of the scene, should be taken with a long focus or narrow angle lens. We go into a crowded city, and, turning into a narrow street, and come upon a fine architectural pile of brick or stone, perhaps less than a hundred feet from the point at which it first comes into view. We stand, and, by turning our gaze from side to side and from the eye level upward, gratify our interest and secure an impression of the entire building. Quite as obviously as in the first example, we are using our eyes again as a lens, but this time as a distinctly wide angle one. A picture of this building made with a wide angle lens will not be objectionable while one of the roadway most assuredly would. Let us take an ordinary hall interior with the two different types of lenses and what do we get. With the long focus lens taking in only a part of the room, perhaps the end in which the stage is located, the effect is much the same as if we examined the interior through a window, and the result, in addition to showing us only a part of the room, is not just as we would have it. With the wide angle lens the effect is much the same as the impression gained by actually standing within the room and the picture is satisfactory to that extent. The wide angle lens, like any other good tool, is the proper one to use when it affords the most satisfactory results. In its own particular case it is quite fortunate that in many instances when it is the only lens that can be used it is the particular lens that will give the result most nearly approaching the mental impression the eye itself records when brought before the same scene. The absurdity of denying ourselves the power which it affords, simply because it gives an unsatisfactory portrayal of a major portion of the views we wish to photograph seems quite plain. It might interest the reader to do a little investigating along this line the next time he happens to visit the motion picture theatre. Take any outdoor scene and it is easy to imagine oneself as occupying a viewpoint that is a part of the landscape, but when it comes to an interior there is no feeling that the action is going on within the same room as that in which one is seated. The latter class of pictures all appear to be presented to us as views made possible by removing the side of the room in which the action takes place, as is really the case with the settings as we all know; although, instead of the near side of the room being removed it is simply a case of its not being erected when the setting is built up.

Fireproofing Fabrics

Wall's "Dictionary of Photography" gives three formulas. The first is as follows: Water, two ounces; sal ammoniac, one hundred and fifty grains; boracic acid, sixty grains; and, borax, thirty grains. The fabric is boiled in this for about fifteen minutes, wrung out and dried. Another formula is: Water, two ounces; alum, one dram; ammonium phosphate, one dram; and, borax, two drams. The third reads: Water, two ounces; ammonium or sodium sulphate (Glauber salt), one-fourth ounce; boracic acid, thirty grains; and, borax, thirty grains. The first one given is recommended as probably the best. Our correspondent should understand that "fireproof" is a relative

term. Fabric treated as above, or with any other like composition, will be consumed by fire, but instead of bursting into flame it will simply smoulder or refuse to burn when removed from contact with other burning matter. As the fireproof quality gradually deteriorates, the treated fabric or a piece treated at the same time, should be tested at intervals and when necessary the article given a new soaking and drying.

Packing Exposed Plates

We happened to be in the rooms of a commercial photographer the other day when one of the dark-room men unbosomed himself as to his opinion of one of the men out on a job who had just sent in several boxes of exposed but undeveloped plates. This field man had put the first plate face down in the box and all the rest the same way, evidently with the idea of avoiding the danger of two emulsion coated sides coming in contact, although just what danger there was in so doing did not seem to be apparent to the dark-room man. Exposed plates should be put back in the box in pairs with their emulsion sides together. True, should any grit or bit of broken glass be retained on the emulsion surface of one plate, and they are packed so loosely that they can rub together, the grit will leave its mark on both plates, but that danger is more imaginary than real, particularly if one will take the trouble to jar off any particles of grit that may be expected before putting the plates together. If one stops to realize that all glass has some little curvature and that the plate makers are very careful to always coat the concave side, they will understand that, placing plates face to face, there is not the same close contact as when they are placed the other way. Anyone handling plates is liable to leave finger marks on the glass side and when this convex surface is placed in contact with the concave surface of the face of the next plate, such finger marks may be transferred to the latter quite easily. Also, in placing the first plate face down in a box, the emulsion of that plate is put in the best possible position to absorb any impurities in the box material or any such that the latter may absorb or allow to pass through. Therefore, always pack undeveloped plates face to face in pairs, without anything between them; and, doing this, the only other precaution that could be suggested is that the space at the sides of the box be filled with pieces of corrugated board or other material so that there can be no side play of the plates.

Blackening Camera Fittings

An Ohio subscriber wants to know how he can blacken the metal parts of his camera. Looking up the books we find two formulas recommended and our correspondent will have to take them at their own value, as we have never experimented with either and can find no one who has. The first is advised for brass and steel while the last is given as suitable for aluminum. The formulas read as follows: Take two hundred grains of copper nitrate to each ounce of water for one solution and a like mixture of silver nitrate for the other. Mix the two; and, after cleaning the metal thoroughly, place in the mixed solution, remove and heat evenly and strongly. For the other formula, gently mix twelve ounces of hydrochloric acid with twelve ounces of water and then add one ounce each of sulphate of iron and arsenious oxide or white arsenic. Clean the aluminum well with fine emery, wash and then dip quickly in the solution, withdrawing and allowing to drain before repeating the operation if necessary. Finally dry off with fine sawdust and apply a coat of lacquer.

Using Bromide of Potassium

Some formula sheets call for so much of a saturated solution of bromide of potassium, others call for the ten per cent solution, while still others give the required amount in grains. All one has to do is to remember that one grain of bromide of potassium is contained in two drops of a saturated solution and in ten drops of a ten per cent solution. Therefore, if your formula calls for a given number of drops of a saturated solution, simply multiply the number by five and use that amount of your ten per cent solution. If grains are specified, multiply by ten and use the same ten per cent solution.

Finding the Focal Length

While not tending to absolute accuracy, focussing the lens on some distant object and then measuring the distance from the diaphragm to the ground-glass, will give the focal length of a lens, except in the case of a single lens when the measurement should be made from the back surface of the lens.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

More About Mats and Irises

Generally speaking, the closer to the lens a mask or iris is placed, the more diffused will be its image; that is, up to a point where the mask opening is so close to the lens that, at ordinary lens apertures, there is no image. On the other hand, the farther the mask or iris opening is from the lens, the more clearly defined will be the image. With a fixed distance between the lens and the mask, the image of the latter will be made smaller and more clearly defined as the lens aperture or stop is decreased. With a fixed size of mask or opening, the farther it is from the lens the smaller and more well defined will be its image. This refers, of course, particularly to before-the-lens masks, there rarely being any means of varying the plane of those used before-the-film. The main difference, however, between the effect of the two types in principle is that of size of image. The image of the before-the-film masks, while being made smaller and more sharply defined by a smaller lens stop, is not made so to the same extent as the image from a before-the-lens mask.

As an instance of the effect of the lens diaphragm on the apparent size of a before-the-lens mask image, one can place an iris in such position that its image barely comes outside the corners of the picture with lens wide open; when, stopping down the lens will necessitate bringing the iris closer to avoid cutting into the corners of the picture. For example, with one of the old stereoptican iris diffusers, three inches is about the maximum allowable distance between lens and iris at f-3.5, if image of iris is to be avoided, while at f-8 stop, about two and three-quarters inches is the maximum. With the new Bausch & Lomb iris, made especially for camera work, four and a half inches at f-3.5 and four inches at f-8 is about the maximum distance allowable without image of iris cutting into the picture. It is well to bear these principles in mind when fitting an iris and mat barrel in order to provide for every possible contingency. One may, at some time, be caught far away from anywhere and without an extension of sufficient length to give the required sharpness or without one short enough to give the necessary diffusion at the desired lens stops. More definite suggestions for the use of mats and irises will appear on this page in a future issue.

An Ultra-Speed Lens

Referring to an inquiry about a certain f-1.9 lens of three-inch focus, we have given one a trial and found it to be of but little practical use. While the phenomenal speed claimed is actually attained, making it between three and four times faster than a lens working at f-3.5, there is such a marked curvature of field that unless stopped down, it does not focus sharply, both on central and marginal objects located at like distances. Even were this fault overcome, there would still be, in a lens of this speed and focal length, so little depth of field as to make the same practically useless for general motion picture work. There might be a rare occasion when a news weekly man could, with this lens, get an interior under light conditions that would be prohibitive for the usual equipment, but the lack of "depth" would be tolerated only in the case of an exceptionally important subject.

Animated Mannikins

While in San Francisco last fall, Willis H. O'Brien, an artist, showed us some very ingenious combinations of animated cartoons and animated mannikins. While apparently quite simple, the perfecting of these mannikins required over two years' time and the expenditure of several thousand dollars in mechanical devices to meet the requirements of animated work. These mannikins can be made up to represent men, animals or nightmares. The subjects that we saw projected included prehistoric men and prehistoric ani-

mals; both good action and good comedy being obtained. With the mechanism perfected, the performers are "directed" on a miniature, nitrogen lighted stage, at the rate of about seventy-five feet of action per day.

Kathol

Of the number, now on the market, of real developing agents to be used in place of metol, the American made product, Kathol, deserves attention.

Kathol is used instead of metol in the usual metol-hydroquinone formulae, adding about one-fifteenth sodium hydrate, by weight, to the sodium carbonate called for. The addition of the hydrate is very important; and, contrary to the expectations of some, the quantity recommended by the manufacturers does not flatten the picture, "burn" the hands, nor injure the emulsion. A peculiarity of this developer lies in the fact that, when seemingly somewhat exhausted, the development speed can be again accelerated by further additions of the hydrate.

Desiring to experiment in making some prints on paper, we mixed up a quart of Kathol-hydroquinone developer. This, after use, was poured back into a bottle and used repeatedly until it worked rather slowly and demanded abnormally long printing time, there then being about four ounces of the original quart remaining. Finally, when a printing time of five seconds image on the paper barely developed up, we added a small piece of sodium hydrate. The next print came up with a printing time of one second, and the developer continued active as long as sufficient remained to cover the paper and no difficulty was experienced in getting prints of good color and gradation.

Kathol, which recently sold for fifteen dollars per pound, has been used by a number of the larger motion picture laboratories for a number of months. The fact is, this developing agent is not altogether new, as it was put on the market only when facilities for its manufacture enabled its producers to catch up with a heavy demand in the east.

"Light and Shade"

Cameramen of scientific bent will be interested in the recently published volume "Light and Shade", by M. Luckiesh, physicist of the Nela Research Laboratory. While not intended as a hand-book on lighting, the work explains very thoroughly the fundamental principles that govern the character of the final "light and shade" effect,—the picture. The text, well illustrated, is divided into chapters dealing with: The Characteristics of Objects; The Shadow; The Cast Shadow; The Scale of Values; The Influence of Color; Light and Shade in Nature; in Sculpture; in Architecture; in Painting; in Stage Craft; in Photography; in Vision; and, in Lighting. All contain a wealth of facts that are suggestive to the thoughtful cameraman desirous of knowing the "why". The author neither catalogues artistic principles nor gives definite working instructions, but he shows, with the aid of the numerous illustrations, the basic factors upon which definite results depend. Although some rather abstract scientific deductions are made, the book is an extremely readable one for such a comprehensive scientific treatise. Interesting illustrations showing the effect of different light sources; light angles; distances; different lightings on cast of a head; and different impressions given by differing lighting characteristics in an interior; and many others given. Personally, we find this book an exceptionally interesting one. Published by D. Van Nostrand, New York. Price two dollars and fifty cents net.

Bell & Howell Branch

Many Pacific Coast cameramen will be interested to learn that D. J. Bell of the Bell & Howell Company, has established an office, display room and service department for his firm at 6522 Hollywood Boulevard, Los Angeles. Incidentally, a number of improvements have been made in the Bell & Howell camera, and there is announced an entirely new tripod to be placed on the market in a few months. Among other features, the new camera has a shutter opening of one hundred and seventy degrees instead of the one hundred and twenty degrees as heretofore.

Illinois College of Photography

The first Japanese lady to attend the College is Mrs. H. Miyamoto of Fukuara, Amoriken, Japan, who entered during the month of November. Mr. Miyamoto is also in attendance, and since the Japanese are among our best students, we predict a bright future for them.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

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NEW MEMBERS.

4300—Roy E. Churchill, L. M. L. A. Building, Hastings, Nebr.
3¼x4¼, developing papers, of general subjects; for the same. Class 1.

4301—C. Y. Halsey, 1830 Nason St., Alameda, Cal.
2½x4¼, 3½x5 and 5x7, various papers, of bathing girls, draped and undraped, and art poses (not French); for the same. Class 1.

4302—Bert Brown, 269 Palou St., Aurora, Ill.
2½x4¼, 4x5, developing papers, of miscellaneous views, landscapes and city views; for miscellaneous views of interest. Class 1.

4303—Beverly Molony, 242 East F St., Colton, Cal.
2¼x3¼ and 2½x4¼, developing papers of auto races in Southern California; for pictures of auto races held outside of Southern California, Eastern races, preferred. Auto races only. Class 1.

4304—Geo. M. Scilacci, Point Reyes Station, Cal.
2¼x4¼ and 3¼x5½, various kinds, of scenery, children, nude subjects, animals and flowers; for nude subjects, scenery, flowers, and animals. Class 1.

4305—Leon J. Husak, 4712 Beacon St., Chicago, Ill.
2½x4¼ to 3¼x5½, of various papers, of landscapes, buildings, parks, water and most any thing of interest; for the same. Class 1.

4306—Thomas Jackson, Box 305, Bedford, Ind.
3¼x4½ to 8x20, developing papers, of stone quarry views, old mills, water and the handling and carving of building stone; for sea views, mountains, lake, Indian, or any thing of general interest. Only first class views sent and the same expected in return. Class 1.

4307—V. N. Swinnerton, 2557 Hartman Ave., Omaha, Nebr.
Class 2.

4308—Mrs. Mable Meek, Murphy, Or.
5x7 and smaller, also post cards, various kinds, of landscapes, and miscellaneous subjects of many kinds; for any thing of interest. Class 1.

4309—J. F. Ferguson, Rte. 3, Box 62, Buda, Texas.
6½x8½ and post cards, developing paper, of landscapes, street scenes, child and figure studies draped and undraped; for mountain and river scenes, bathing pictures and nude studies. Class 1.

4310—C. D. Steves, Lake Stevens, Wash.
Class 2.

4311X—P. C. Anderson, R. F. D. No. 1, Box 32, Joice, Idaho.
3¼x5½ and 5x7, developing papers, of farm and city views, public buildings, animals, etc., for only good work of any thing of general interest. Post cards only. Class 1.

4312—J. Leo Hafen, Arco, Idaho.
Class 2.

4313—M. W. Howard, 1917 Woolsey St., Berkeley, Cal.
Class 2.

4314—Watson E. Bowman, Dayton, Wyo.
3¼x5½ and 6½x8½, developing paper, of portraits and views; for anything good. Class 1.

4315—Omer Boswell, R. F. D. No. 5, Box 31, Greencastle, Ind.
Class 2.

4316—Scott Keaton, 236 Wall St., Grass Valley, Cal.
Class 2.

4317—Chas. A. Booker, Box 42, Boyce, La.
3¼x4¼, post cards, of views of general interest; for the same. Post cards only. Class 1.

4318—Manoel Pimenta, 141 Rua do Principe, Oporto, Portugal.
9 cm.x12cm. and post card size, developing paper, of Portugal views and landscapes, also street scenes; for work of the same. Class 1.

4319—C. Clawson, 1222 Wall St., Los Angeles, Cal.
3¼x5½, printing out paper, of miscellaneous subjects; for any thing of general interest. Stereoscopic prints only. Class 1.

4320—Roy E. Churchill, L. M. L. A. Bldg., Hastings, Nebr.
3¼x4¼, developing paper, of portraits and landscapes; for the same or any good pictures. Class 1.

4321—L. A. Smith, Tooele City, Utah.
Any size up to 5x7, various papers, of views and portraits; for views, scenes and studies. Class 1.

4322—George Engelson, Lock Box 301, Pomeroy, Wash.
From 2¼x3¼ to 5x7 and post cards, various papers, of street scenes, general views, harvest scenes and children; for general views, mountains, sea shore, landscapes, etc. Class 1.

RENEWALS.

188X—Edward Truman, Burton, Ohio.
Class 2.

672—Henry L. Dillon, R. F. D. No. 3, Darlington, Pa.
4x5 and 5x7, developing papers, of farm views, animals, and miscellaneous views; for foreign city street scenes. Post cards and prints. Class 1.

1756—Geo. W. Given, 2771 Pratt St., Bridesburg, Pa. Class 2.

1854—Burdette Harrison, 210 Lock St., Tarentum, Pa.
3¼x5½ and 4x5, of landscapes and things of general interest; for the same. Only good work given and received. Class 1.

1895X—Arthur L. Burgess, 227 N. 20th St., Columbus, Ohio.
Post cards and prints up to 4x6, of miscellaneous subjects, ray filter work and cloud views, etc.; for the same. Class 1.

2835—Frank M. Remster, 69 Myrtle St., Bridgeton, N. J.
Class 2.

2885—George Macaulay, 167 Allen St., New Bedford, Mass.
3¼x4¼, developing paper or post cards, of marine and miscellaneous views, also a few speed views; for views of interest, especially mountain views. Good work only. Class 1.

3227—V. Rose Huff, Chagrin Falls, Ohio.
Prints, post cards and enlargements, developing papers, of interesting subjects in good work and prompt exchange; for the same, prefer post cards fully covered or with borders, can send fruit, flowers, etc., in water colors. Class 1.

3374—B. W. Leeson, Quatsino, B. C., Canada. Class 3.

3848—William Charles, Box 33, Basom, N. Y.
2¼x3¼ to 5x7, developing papers, or post cards of views, outdoor sports and figure studies; for the same. Class 1.

3940X—A. N. Ward, Shelton, Wash.
V. P. Kodak, 3¼x5½, 5x7 and enlargements, various papers, of landscapes, clouds, genre and portraits; for landscapes, seashore, bathing girl studies. Class 1.

4001—Fred Weidmann, 1692 Second Ave., New York, N. Y. Class 2.

4049—Robert S. Blatchford, Reserve, New Mex. Class 2.

4163—C. A. Heald, R. F. D. Box 26D, San Dimas, Cal. Class 2.

4186—A. E. Molando, P. O. Box 213, Canaan, Conn.
Post cards, 4½x6½ and 5x7, various papers, of figure studies draped and undraped, from the original negatives; for the same class in return, no copies however good accepted. Class 1.

4196—Mrs. Aluce Jensen, P. O. Box 56, Hagerman, Idaho.
Class 2.

4236—William Rocamp, Ashville, Man., Canada.
Will be unable for some time to exchange as he lost his home and contents by fire and has been in a hospital since January 2nd. Had a letter addressed to a member in New Zealand but is unable to recall name or address. Will publish notice when ready to again exchange.

CHANGES OF ADDRESS.

4116—Fred Gruneisen, R. F. D. No. 5, Lexington, Ohio.
(Was Mansfield, Ohio.)

4156—Thos. P. Mason, 602½ Southwest Blvd., Rosedale, Kans.
(Was Kansas City, Mo.)

4204—Claude Vedder, East Akron Station, Akron, Ohio.
(Was Butte, Mont.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

The Oregon Camera Club

The Oregon Camera Club of Portland, Oregon, moved into its new quarters, top floor of the Elks Building, on January thirty-first, taking a three years lease. The place, formerly occupied as a photographic studio, is one of the most desirable in the city; and, when remodeled, will easily rank among the best.

One section of the floor is taken up by a large reception room with modern furnishings, a library, a directors' room, a dressing room, a plate loading room, and a large studio, 21x40 feet. The latter, while equipped with a generous skylight and a number of large windows, making it exceptionally well adapted for studio work, will also be used for entertainments, lectures, and exhibitions. The other section is occupied by a large locker room, a large developing room, four printing and developing rooms and a spacious enlarging room. Large built-in cement-lined sinks are part of the equipment. A smoking and card den occupies the center of the more than three thousand square feet of floor space. Each section has its own entrances, eliminating the necessity of passing through the reception room or studio to reach other rooms. A committee of instruction will look after all beginners, while outings, both regular and special, will furnish unlimited opportunities for picture making. These last will be in charge of a committee that will give all possible attention to those desiring information in the use of the camera. The house warming and entertainment held Tuesday evening, February twentieth, was a success in every way. Fred H. Kiser, the popular landscape photographer, exhibited his wonderful collection of colored lantern slides of Oregon, Washington, Idaho and Montana scenery, and a short musical program was included. Similar entertainments and lectures will be featured the third Tuesday of each month.

The Columbia Photographic Society

The monthly program of this enterprising society indicates that its members are being favored with a series of educational talks and demonstrations that should be of great value to them. The program for January included a demonstration of studio practice, an exhibition of prints, a lecture on the exposure and development of plates, and a demonstration of gum printing and home portraiture. For February there was a lantern slide exhibition, awarding of prizes in the print contest, a demonstration of flashlight work,

and an illustrated lecture entitled "With a 2-A Brownie Through Europe." Events scheduled for March are of an equally interesting character and the members of the Columbia Photographic Society are to be congratulated upon the activities which its committees are showing.

A Los Angeles Salon

During the latter part of May the Southern California Camera Club will hold a Salon, open to contributors from all sections. While the committee has formulated but few set rules, a high degree of artistic merit will be demanded by the jury of acceptance, composed of three artists. This will assure such a standard of pictorial excellence that admission to the Salon will constitute a distinction. While it is preferred that mounts be not over thirty inches in their largest dimension, prints will be disbarred only because, in the opinion of the judges, they do not conform to the highest standard in their pictorial qualities. Prints submitted must be in the hands of the print committee before May first. Application for entrance blanks should be made to Miss O. P. Close, 313 West Third Street, Los Angeles, California.

The Coming Toronto Salon

Announcement is made that the Toronto Camera Club will hold its Fourteenth Salon, its twenty-sixth annual exhibition, at the Toronto Art Museum, May second to sixteenth, inclusive. This exhibition will be international in character, it will bring together a thoroughly representative collection of all that is best in pictorial photography and the committee asks for the co-operation of all photographers in making it a worthy successor of those that have preceded it. Copies of the prospectus and entry blank can be secured, upon request, from the Secretary, Albert Kelly, 2 Gould Street, Toronto, Canada. While the supply lasts, local workers can secure copies by calling at this office.

OUR BOOK SHELVES

Morality of the "Glad Game"

The popularity of Pollyanna, great as it has been, cannot be called unbounded. The "glad" game has its fierce despisers, but these objectors allege that in trying to teach everybody to be glad under every possible circumstance she is destroying a much better virtue than she builds up; she is attempting to make people happy by making them deny and distort the truth. And these high moral critics solemnly depose and say that as for themselves they would infinitely rather be grouches than hypocrites. In answer to these disparagements it is not required to rebuke anybody for favoring truth above optimism or for rating straightforward honesty ahead of all pretensions. But when they spend their virtuous sentiments on Pollyanna they convict themselves not of bad doctrine, but of ridiculously shallow misunderstandings.

That, of course, is the nub of all the criticism—the assumption that Pollyanna called her griefs joys and so by a pitiful jugglery in her own heart convinced herself that she had nothing to be sorry about. But the point with Pollyanna was that she had set herself against losing in the midst of her troubles what real joy she still possessed,—or could discover by searching. She systematically "made the best of things" instead of the worst of them. She became a connoisseur in gladness with a collector's eye for unrecognized gems.

"How To Make Enlargements"

A new edition of this valuable member of the Practical Photography series has just been published and those of our readers who are interested in the subject of enlargements should not fail to supply themselves with a copy. While the book is not a large one it covers the ground completely and there seems to be nothing omitted that will help the worker to a thorough understanding of the subject. The different kinds of enlarging apparatus are explained, together with instructions for constructing them, and from this point the reader is taken through the whole process to the details of manipulation involved in making combination prints, securing soft focus results and the like. The price is twenty-five cents in paper covers, fifty cents in handsome cloth binding, and it can be obtained through most dealers or by sending direct to the American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Fred Hartsook is opening two new studios; one in Fresno and one in Stockton.

Our friend Charles Boussum has also added two studios; one in Stockton and one in San Jose.

James Henry, well known in San Francisco and a former president of the California Association, died in Los Angeles of pneumonia the latter part of January.

H. F. Hoefle of the Eastman Kodak Company, gave his annual lecture in the auditorium at the Hirsch & Kaiser Building, on February fifth.

H. S. Carter, formerly of Salem, Oregon, has taken a position in the Hartsook studio in Los Angeles.

The writer is now in the Sunny Southland filling his order book for Hirsch & Kaiser.

Mrs. Emma Freeman of Eureka, noted for her fine Indian photographs, recently spent a week in San Francisco.

William Valentine of Redding, was in San Francisco during February.

E. P. Chambers came over from Fresno for a brief visit to San Francisco.

Edgar Felloes, a skilled artist and photographic specialist from Portland, is now with the Vitaslide Company.

Santa Clara Valley Notes

J. C. Franklin of Palo Alto is very busy with a number of large college groups. "Pop" surely knows how when it comes to handling the savage collegians in large bunches.

J. T. Aitken, who came to Santa Clara from New York, is now the proprietor of the Mission studio. Mr. Aitken is very much pleased with Santa Clara and is anticipating a prosperous year.

G. C. Hulse of the Hulse Kodak Finishing Service, San Jose, has recently returned from a trip to New York, where he went to meet his wife on her way home from Jamaica.

M. C. Voorheis, with the Bushnell studio, San Jose, reports the prospects never brighter for a prosperous spring and summer business. Mr. Voorheis is very much interested in the use of artificial light in the studio.

William Hawarth of Roberts & Hawarth, stationers and photo dealers, reports a steadily increasing business in photographic supplies, which speaks well for the photographic trade in San Jose.

The Charlemagne studio of 53 South First Street, San Jose, is now known as the Simpson studio. Mr. and Mrs. Simpson were formerly conducting the Mission studio at Santa Clara.

Ben Lyle of the Defender Photo Supply Company recently called on the trade through the Valley in the interest of both his friends there and his firm's branch house in San Francisco.

A Delightful Entertainment

One of the most pleasant social events since the assembling of the State Legislature was the reception by the Jensen-Raymer studios last Tuesday evening, in honor of the Senate and House of Representatives.

The spacious rooms were given up to the throngs of Senators and Representatives, many of whom were accompanied by their wives, daughters and sweethearts. Mrs. Robert Routt presided with grace and dignity at the service table and all agreed that she was the one for the place. Those in the receiving line were Mrs. Thomas C. Jensen, Mrs. F. A. Raymer, Mrs. Minette Witherington and Miss Frances Johnson, all of whom were ably assisted by Mr. Thos. C. Jensen and Prof. F. A. Raymer.—*Austin, Texas, Statesman.*

A Letter To Jack

Jack made up his mind he wanted to be a photographer and his cousin "Patty" wrote him a letter brim full of good advice. It would take a whole page of this small print to give the letter here, so we will ask that you send Daddy Lively a card asking for a copy. He is glad to send them out,—had

them printed just for that purpose, so don't be bashful. And if you do not believe all the letter says, you can write the young lady who wrote it,—her address is given, but of course we will not guarantee a reply. Perhaps "Jack" isn't a real cousin, perhaps,—well, address a card: "Daddy" Lively, McMinnville, Tennessee, and ask for a copy of the "Dear Jack" letter. If you are thinking of taking up photography as a profession it will interest you.

Instructions in Painting and Drawing

Harry W. Seawell, for the past ten years instructor in Art at the University of California, will, in addition to his regular classes in painting and drawing, conduct a class for young people on Saturdays at his studio at 1617 California Street, this city. Mr. Seawell studied in Paris under Jean Paul Laurens and Benjamin Constant; and, as a painter of portraits he has the good fortune of being most successful with his likeness, an important essential in that branch of art. Kindly and considerate, frank and unassuming, to his ability as a painter is added that experience as a teacher which so eminently qualifies him as an instructor. Knowing him as we have for many years, we can recommend him, without reserve, to any and all who may be desirous of securing guidance in drawing, still life, oil and water color painting and pen and ink work. Arrangements can be made by applying at the studio or telephoning Pacific 1737.

The New Developer, Serchol

Not only have we ourselves given this new developer a careful trial, but several of our friends have had the same satisfactory experience with it. Serchol is a British-made developer, replacing metol, and the manufacturers assure us that it is even better because it is a more chemically pure product. Aside from the fact that it has the advantage of being more controllable by the addition of bromide, perhaps due to its chemical purity, it is used exactly the same as metol in any and all formulas, including those in which hydroquinone or pyro form a part. The user can substitute it for metol in his favorite formula with every assurance of satisfaction, although it might be suggested that care be used that a greater strength than one and one-half grain to the ounce of solution be not exceeded. The present price is one dollar and fifty cents per ounce or twenty-two dollars and fifty cents per pound, which makes it quite economical considering its good keeping quality and strength. The popular local dealers, Hirsch & Kaiser, of 218 Post Street, this city, carry it in stock and find the sale rapidly increasing as its merit becomes known. We would advise at least a trial of this new developer and as there is a quarter ounce package offered at fifty cents, the satisfying of one's self of its merit is not an expensive matter.

In New Quarters

The New York Institute of Photography has removed from its old location to larger and more convenient quarters equipped with a most complete photographic and motion picture studio, situated atop the Herald Square Building, 141-143 West Thirty-sixth Street, New York City, just a stone's throw from Times Square. The change has been made necessary, we understand, by the ever increasing number of pupils enrolling and we must congratulate them upon the success achieved. A request, addressed as above, asking for a copy of their catalogue D, will bring information that will prove interesting to anyone contemplating the taking up of some form of photographic instruction.

Moving Pictures In The Home

A moving picture camera at a popular price, as all our readers now know, is being offered in the compact little Movette manufactured by the Movette Camera Corporation, 1163 University Avenue, Rochester, New York. For that reason a few words concerning the inventor and his achievement will no doubt interest. The efficient little Movette is the invention of a young Chicago man, Frank L. Hough, who got his idea while working, at the Edison Company plant, with the man who was the inventor of the first moving picture machine, the Kinomatograph and the Edison Home Projecting Machine. Three years ago Mr. Hough placed on the market a popular priced motion picture camera for professionals, one that is quite extensively used for current events, of the "Topical Weekly" kind. Starting from this point Mr. Hough set about the production of a camera wherein the simplification of the mechanism would make possible a popular priced moving picture camera. The problem to be solved was the elimination of

the intricate appliances of the professional camera and a happy accident resulted in a solution thereof. Quoting Mr. Hough's own words:

"Just when I was most discouraged and saw no way out without adding expensive connecting contrivances, the film I was working on got twisted in a loop. I looked at it, first in disgust, then in delight, for it solved the problem. Here was a way of always having the slack I needed to give perfection in uniform exposure in camera and projector, and right there, off came half or more of the cost of my camera.

"I had already cut off a big slice of the cost, one difficulty after another in the cost of manufacture having gone until this last problem remained. You see I use only one film container, whereas all professional cameras have two. The film had to unwind from the reel, pass behind the lens, receive the picture and rewind. And this peculiar loop, that came of its own accord, did the exact trick. But what is most important, I saw what made the loop and it now can't do anything else but form this way. I have built my camera and projector around that loop, and I have received thirteen patents on that loop alone. Altogether there are one hundred and thirty-one patents granted on the Movette."

The firm mentioned above, organized to manufacture both the camera and the projector, has solved every problem of cost in films, film developing and printing. All has been brought to a home possibility. The films are fifty feet in length, enough to last for two minutes, or really equal to one hundred feet of professional film, because, being much smaller, more pictures to the foot are taken.

They can be loaded and unloaded in daylight, just as simply as a film is loaded in a still picture camera. All the Movette user has to do is to ask for a spool of Movette film from his dealer. He breaks the paper seal over the opening of the package, draws out the film far enough to form a loop inside out, places the loop in the film mechanism of the camera, closes the door, attaches the crank handle and begins taking pictures.

When he has exposed the film—and it will be found astonishing the amount of action he can get in fifty feet—watch the second hand of your watch for two minutes and imagine how much can happen in that length of time—he removes his film container, covers the opening with a sticker and lays away the film until he wants to develop it.

A catalogue and full particulars can be obtained by addressing the manufacturers, The Movette Camera Corporation, 1163 University Avenue, Rochester, New York.

Fotocraft Changes Name

The name of Fotocraft, under which so much has been accomplished during the past five years for the advancement of art in Bangor, was changed, and hereafter will be known as the Bangor Society of Art. Announcement is also made that the 1917 Salon of the society will be held in the Public Library during the two weeks of May seventh to nineteenth. This exhibition will consist of works in painting, photography, and arts and crafts, and indications now point to a Salon that will eclipse anything previously held in Bangor.

The board of trustees elected for the ensuing year is as follows: Orman B. Humphrey, chairman; George I. Mansur, treasurer; Alice G. Welch, secretary; George L. Francis and Leyland Whipple.

Illinois College of Photography

After spending several months at the College, James Skillen has purchased a studio in Sharpsville, Pennsylvania. Mr. Skillen is an energetic young man and we predict a bright future for him.

The entire edition of "The Self Instructing Library of Practical Photography", published by the American Photographic Publishing Company, has been purchased by the College. The volumes are found very helpful to the students as books of reference.

Otto Hillig of Liberty, New York, accompanied by a merchant friend of that city, passed through here last month on their return from a long automobile tour to California. Mr. Hillig was a student of the Colleges in 1900, and we were glad to receive a visit from him.

E. V. Reyes of Huacho, Peru, won first prize at the last Camera Club contest. This makes a total of three first prizes Mr. Reyes has received, and as is the custom, President Bissell will present him with a silver loving cup. These facts speak well for the young man's ability as a photographer.

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CAMERA CRAFT

A Photographic Monthly

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IN THE HILLS OF CALIFORNIA
By JAMES N. DOOLITTLE

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV APRIL, 1917 No. 4

Hypo: A Few Observations

By James N. Doolittle

With a Few Illustrations by the Author

FRIEND EDWARDS IN QUEST OF THE PICTORIAL.

SOME wise sage, some long years ago, gave expression to the thought that "An honest confession is good for the soul"; so, before asking the reader to continue further, and for the well-being of my soul—whatever that is—I will frankly admit that aside from the knowledge that the important salt, commonly called hypo, used in most present day manipulations of sensitized photographic products, is employed to render permanent an impression, made through the agencies of light, I am woefully ignorant of the exact nature of the functions performed. Like countless others who have employed photography, first as a hobby and later as a means of artistic expression, I have used solutions of this chemical by the gallon; yes, by the barrel, doing so for a number of years with little or no thought as to its actual behavior. While originally ignorantly considering that the phenomenon of "fixing" was a simple proposition, somewhat mature experience caused me to realize that its part in photography was, at

least to me, a deplorably obscure matter. The reader bearing with me, I shall set forth a point or two in connection with my topic in the hope that he be at least led into an inquisitive frame of mind in the interests of improved results.

Hypo, as a fixing agent, was first recommended by Sir William Herschel. Its action upon silver emulsions taking place according to the following equations:

$AgCl + Na_2S_2O_3 = AgNaS_2O_3 + NaCl$, all of which means that silver chloride plus hyposulphite gives double hyposulphite of silver and sodium plus sodium chloride: the double hyposulphite of silver and sodium being almost insoluble in water although soluble in hyposulphite of soda. This points the necessity of allowing the completed action of the fixing bath as well as the use of an excess of hypo, the latter as shown by the equation: $2AgCl + 3Na_2S_2O_3 = Ag_2Na_43\ (S_2O_3) + 2\ NaCl$. In this, the double salt is avoided if full action of the hypo is permitted.

A DESIGN

In compounding a fixing bath, correct proportions are of paramount importance. While too weak a solution will act too slowly and fail to do a sufficient amount of work, a too concentrated solution is alike unsatisfactory. This latter fact was quite forcibly impressed upon my mind some years ago. I was then in the employ of a commercial photographer, and much against my will, I was asked, one Sunday, to help on some rush work intended for early Monday delivery. The exposed plates were to reach me Sunday morning and I was to develop them and have prints ready on time. Not until I arrived at the shop in the morning did it occur to me that the small tank of old hypo would hardly stand the strain of fixing a couple of dozen 8x10 plates; so, thinking to hasten operations, I made up a new bath and made it good and strong. The plates were developed and one by one placed in the fixing bath. Then I went out to breakfast, returning about a half hour later to find, much to my consternation, that the negatives had not even started to fix, their appearance remaining exactly as when first placed in the solution. As the temperature seemed about right I was unable to account for the hesita-

tion in what is usually not a protracted operation. Well, to make a long story short, I called up the Boss and related my troubles. He came down and, after carefully quizzing me, took a bucket and threw a couple of gallons of water into the tank. In a few minutes the negatives were cleared.

Considering the purpose to be achieved, permanency of results is all important. With the subsequent complete elimination of the hypo from the emulsion, by washing, the complete reduction of the unaltered silver deposit is most

MARCH LANDSCAPE

essential. I am of the opinion that the blackened silver image made visible by development is itself permanent, the process of "fixing" being only necessary to remove the sensitive salts from those portions of the print or negative that were not acted upon by the light as it reached the plate through the lens. In this connection it may be observed that the term "fixing" seems a misnomer as applied to the actions of hypo, it seeming more reasonable to assume that the developer is the fixing agent while the hypo merely eliminates that which would no longer be required to exercise its functions as a light sensitive compound.

When is a print fixed? Demonstrators have given me, as a rule-of-thumb guide, the information that, when a fixing solution will produce, upon agitation, a froth or foam, it has been overworked. Still, I have fixed negatives in such a bath and found that the action was complete in the usual length of time. I really do not expect an authoritative answer to my question, as there seems to be considerable divergence of opinion among those who seek to advise. About the only advice that I have found worth following is that given me by an old

timer relative to exposure. Said he, "Figure out the proper expose as best you can and then double it". Applied to fixing, I allow a print to remain in the bath as long as seems necessary, "and then some".

Complete saturation of an emulsion coated on paper is more quickly and effectually achieved than in the case of an emulsion on a glass plate, inasmuch as the solution, in the former case works upon the under side, through the pores of the paper, as well as upon the exposed surface. But this very fact is the underlying reason for the greater difficulties attending its removal by washing, after its work is completed. Hence the washing should not be slighted. At this point I am reminded that, while complete elimination of hypo is said to be necessary before toning by the sulphiding process can be effectually carried out, I have recently toned a print which had had merely a rinse under the tap before bleaching; and, if the resultant rich sepia tone is permanent, there seems to be a mistaken hypothesis somewhere along the line. Time may tell, however.

LANDSCAPE

In the earlier stages of my experience as an amateur I would ask, "Is such-and-such a paper permanent?" Today, believing that all modern emulsions can be rendered completely so, my chief concern is that I do my part in carrying out the prescribed manipulations to the end that the image may remain unchanged after the lapse of years.

I take it as a quite reasonable assumption that, if a certain fixing solution will completely reduce the unaltered silver in a plate in, say fifteen minutes, a print should become completely fixed therein in the same period of time, particularly as most authorities seem to favor a somewhat weaker solution for the latter than for the former. A careful worker informs me that he employs old, unexposed plates, as test strips when he has reason to suspect that his hypo bath is losing its properties. His method is to cut a 4x5 plate into four or five strips, and taking one of these and immersing its end in the hypo, at the time of immersing the last print, and then reverse it after the first end had become perfectly clear. When the last inserted portion of the strip is also cleared, it

is assumed that all the prints subjected to the same bath for the same length of time are thoroughly fixed.

Mere visual observation, unfortunately, is not a safe foundation upon which to base determination where chemical reactions are involved, as changes take place that are not made manifest by alteration in the physical characteristics of, in this case, the emulsion. For example, a plate has all the resemblance of being fixed when all "milkiness" has disappeared, but experience proves that fixation is not necessarily complete when this point is reached. If the negative be removed from the fixing bath and immediately washed, a brown stain may develop, one which is impossible of removal.

Closely allied with the consideration of proper fixing is the problem of completely eliminating the hypo after it has performed its function. While the washing of glass plate negatives seems to present no serious difficulties, inasmuch as there are many efficient washers on the market that necessitate no further attention than merely turning on the water, the matter of complete hypo elimination from paper prints is, to my way of thinking, the one factor that makes work out of what would be otherwise a pleasure. Not that I am particularly adverse to work, but when one finds out, years later, that a print which he had conscientiously treated to the prescribed "one hour's washing in running water" has since developed a sort of anemia, one's tastes for that particular form of effort is inclined to diminish.

Platinum papers are said to be "permanent". And so they are if given a fair chance, but faulty manipulation will render the image as fugative as one of the cheapest product on the market. I have seen blue prints and bromide prints, twenty years old, that have apparently withstood the ravages of time without any loss of their original brilliancy, while a couple of small platinums that I made in 1907 are much the worse for their ten years existence. Neither platinums nor blue prints have much to do with "Hypo"—I merely make this digression as a case in point.

A Monster Enlargement

At the Advertising Show held in Milwaukee, January thirty-first to February third, the publishers of *The Milwaukee Journal* showed, as a background to their booth, a monster newspaper mounted on a screen about twelve by fifteen feet in size. As this is perhaps the largest photograph of its kind ever made in the middle west, a description of its production might be of interest. The work was entrusted to the well known Milwaukee firm of Commercial Photographers, Brown & Rehbaum, Incorporated, who have kindly supplied us with full details and the picture of the booth shown herewith.

A standard size newspaper was submitted as copy, and from this was made 8x10 negatives of the two pages. As a patched up job was not wanted it became necessary to make four enlargements, each forty inches wide and

one hundred and eight inches long. To start with, two trays were made out of one inch lumber, forty-eight inches wide and ten feet long. These, coated with Probus Enamel to make them water-proof, cost eighteen dollars for the two. Two stretcher frames, 80x108 inches, were made of kiln-dry lumber, well reinforced with angle irons, and then covered with a good grade of linen. The lumber and materials used in the frames cost twenty-five dollars, the linen costing eight dollars additional.

These stretchers were taken into the enlarging room and used as backgrounds for focusing. After the exact focus was obtained and the correct exposure determined by exposing a number of test strips, two big bands of Eastman's Standard B, Double Weight Bromide, each 40x108 inches, were put up, care being taken to match them smoothly in the center. A twelve inch Goerz Dagor lens was used with the new Cooper Hewitt, M-Shaped tube to furnish light. The exposure given was fifty-five minutes. Each strip was developed separately in one of the large trays; it taking seven hundred ounces of developer for the four big strips making up the two pages. The cost of the bromide paper alone was thirty dollars.

It took three men twelve hours before all of the enlargements were in the wash water. They were then placed, face down, on a large strip of oilcloth, for mounting. The paste was applied with a paper-hanger's brush, the prints were placed on the large stretchers to dry, after which they were finally ready to be delivered and set in position for the exhibit. As far as known they are the largest facsimiles of a newspaper ever shown, and their perfect quality reflect great credit upon Brown & Rehbaum, Incorporated. These enterprising photographers have been highly praised for this work, as it is considered one of the greatest photographic feats of the kind ever performed in Milwaukee.

Ray Screens Used In Multiple

By William Hood

With Illustrations by the Author

The author of the following article lacks the somewhat prevalent distaste for figures that characterizes the average photographer. For that reason this description of his method may, to some of our readers, seem involved; may, perhaps, not be fully understood in every detail. While Mr. Hood does not wish to invite any discussion as to the correctness of his method, preferring that it be judged by the results secured, we feel quite sure that he will endeavor to make clear any point concerning his procedure that may deter the reader from giving it a trial. Inquiries addressed to us will be submitted to him and either individual answers sent out or another article covering such questions will be published.—THE EDITOR.

The issue of CAMERA CRAFT of May, 1913, contained a brief exposition of my method of dealing with subjects of harsh lighting contrasts.

In order that the possible commercializing of it by others should not prevent its use being available for my fellow amateurs, the method has been cov-

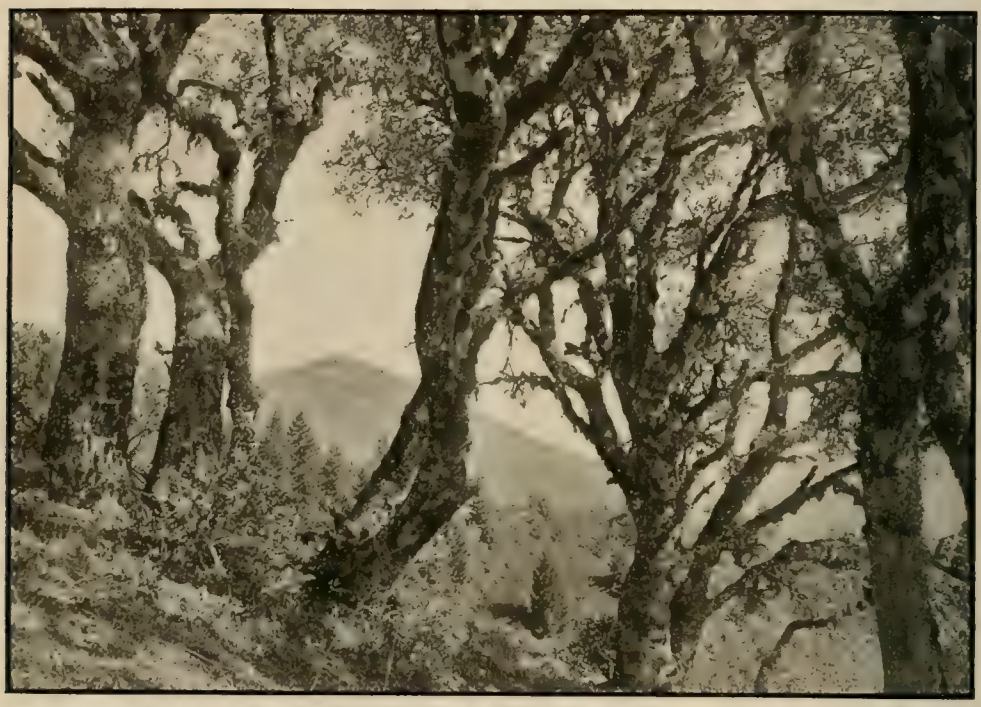
November 22nd, 11:43 A. M., actinometer time 8 seconds, stop U. S. 64, Wynne plate speed 192, back combination only 7⅞ inch lens, two 17 times filters. Cramer Spectrum plate six minutes and forty-five seconds exposure. Formula: $\frac{8x64}{192} \times 1.05 \times 4 \times 289 \times 1/8 = 400$ seconds.

October 26th, 11:58 A. M., actinometer time, 8 seconds, stop U. S. 16, Wynne plate speed 192, 7⅞ inch lens, two 17 one 16 and one 4 times filters, Cramer Spectrum plate, twenty-six minutes and twelve seconds exposure. Formula: $\frac{8x16}{192} \times 1.02 \times 18496 \times 1/8 = 1586$ seconds.

ered by United States Letters Patent Number 1,182,485 granted me May ninth, 1916.

All covered therein is open to the free use of everyone desiring to employ it for any purpose other than a commercial one. At the request of the editor, who has received many inquiries as a result of my announcement to this effect, I will endeavor to outline the method as fully and completely as I can, depending mainly upon the illustrations herewith for that purpose.

The object of this method of using ray screens or filters in multiple in photographing subjects of extreme contrast is to avoid over-exposing the high lights and at the same time avoiding clear glass in the shadow portions of



MT. TAMALPAIS THROUGH MOSSY OAKS—October 12th, 10:30 A. M., actinometer time 7 seconds, stop U. S. 64, Wynne plate speed 192, 8¼ inch lens, two 16 and one 4 times filters, Cramer Spectrum plate, five minutes and eight seconds exposure. Formula: $\frac{7 \times 64}{192} \times 1.03 \times 1024 \times \frac{1}{8} = 308$ seconds

the resulting negative, doing either or both to any extent that might be desired.

It is, of course, realized that the harmonizing of the deep shadows and highly illuminated portions of a scene may possibly be carried to the extreme of unnatural flatness (but this is unlikely unless the subjects are very well lighted), and the amount of control that different workers may wish to exercise will be variable; in fact, individual workers will no doubt desire to exercise variable amounts of such control in different cases.

Using this method obviates the necessity of all retouching and "dodging" so frequently advocated and practiced with the intention of correcting or minimizing lack of detail or clear glass in the shadows, with over-dense deposits in the better lighted portion, in negatives of subjects having excessive contrast.

This method gives the photographer complete control of these matters during the exposure of the plate, thereby enabling any desired effect to be secured, ranging from complete shadow detail to as much less as may be required for the desired effect.

Photographs of architectural subjects are advantageously made by this method, which can be relied upon to leave nothing lacking in the details of the deeply shaded portions.

Ray screens, used during the exposure of panchromatic plates or partially color sensitive plates,—if used two or more at a time—require the time of exposure to be in proportion to the product of the ratings of the several ray screens.

OVERLOOKING BOLINAS BAY—March 15th, 10:40 A. M., actinometer time 7 seconds, stop U. S. 128, Wynne plate speed, 192, 8¼ inch lens, two 8 and one 16 times filters, Cramer Spectrum plate, ten minutes and thirty-three seconds exposure. Formula: $\frac{7\times128}{192}\times1.06\times1024\times{}^{1}/_{8}=633$ seconds.

For instance, if an eight times screen and a ten times screen are used together, the time of exposure must be eighty times as long as if no ray screen were used.

For instance, if two screens, each being of sixteen times rating, and two screens, each being of eight times rating, are used, the product of which is sixteen thousand three hundred and eighty-four, the time of exposure must be sixteen thousand, three hundred and eighty-four times as long as if no ray screens were used.

This method is based on the fact that if light passes through any transparent or translucent substance by which its amount is reduced, the remaining light on passing through another piece of identical substance will be reduced in the same proportion.

For instance, if a ray screen of ten times rating stops the passage through it of all but one-tenth of certain light rays, and the resulting remaining light is made to pass through another ray screen, which is exactly like the first one, there will remain but one one-hundredth of the certain light rays of which but one-tenth passed through the first ray screen.

The ray screens or filters to be used are of any make that are ordinarily used with orthochromatic plates for compensating the effects of harsh lighting contrasts and for enhancing the excellence of the black and white color value rendering by panchromatic plates; as for instance, the Goerz ray screens of the reddish-yellow type, made of plain colored optical glass.

Different kinds of plates require their several and different factors when two or more ray screens are used, this being a matter of experience which has indicated, for example, the following factors for subjects where portions of the objects are brightly lighted by direct sunshine instead of by diffused light: Cramer Spectrum plates, factor $^1/_8$; Wratten & Wainright Panchromatic process plates, factor $^3/_{16}$; Eastman Standard Orthonon Plates, factor $^3/_4$; Cramer Portrait Isonon plates, factor $^5/_8$. The less the brightness of the sunshine, the larger the numerator that can be used in the factor.

For determining the combined rating of ray screens to be used for a given subject, a little experience will enable it to be decided on promptly, but always acting on the principle that if there is any doubt, use a larger combined rating. If the light is actually tested, the method may be illustrated as follows:

1. Let an actinometer face the sun, reading perhaps two seconds.

2. Place the actinometer on the darkest part of the subject, facing the camera, reading perhaps sixty-four seconds.

3. Sixty-four divided by two gives indicated combined ray screen rating of thirty-two, on the basis that the darkest part of the subject returns as much light to the camera as it receives, which is never the case.

4. Assuming that the darkest part of the subject would return to the camera one-quarter of the light it receives, the combined ray screen rating would be thirty-two multiplied by four, equals one hundred and twenty-eight. Some objects are of a combined character of surface and color that returns to the camera a very small fraction of the light they receive.

5. Assuming a Wratten & Wainright Panchromatic Process plate requiring a factor of $^1/_8$ for the high lights, a combined ray screen rating of one hundred and twenty-eight multiplied by eight, or one thousand and twenty-four, would be indicated.

6. If an Orthonon or other partially color sensitive plate is to be exposed under the same conditions, use the combined ray screen rating obtained as heretofore described (one thousand and twenty-four), but in the computation a $^6/_8$ or other factor; for, the less color sensitive the plate the larger the numerator of the factor.

7. The exposure is then computed on the basis of its being one thousand and twenty-four times as long as would be required, without ray screens, for a brilliantly sun-lighted subject in an open place.

8. For example, a brilliantly sun-lighted subject in an open place, at a

certain time of the year and time of day, might require, for Eastman Standard Orthonon plate, with unity factor, eight seconds exposure with the lens stopped down to U. S. 512 (f-90.5) and no ray screen; or, with $^6/_8$ factor, six seconds exposure with the lens stopped down to U. S. 512 (f-90.5) and no ray screen; or, with $^6/_8$ factor, six thousand one hundred and forty-four seconds exposure with the lens stopped down to U. S. 512 (f-90.5) and combined ray screen of one thousand and twenty-four rating; or with $^6/_8$ factor, forty-eight seconds exposure with the lens stopped down to U. S. 4 (f-8) and combined ray screen of one thousand and twenty-four rating.

It is convenient to have some ray screens cemented together and mounted in a cell threaded to screw into the front or back of the lens. For instance: two screens of seventeen rating cemented together would act as a two hundred and eighty-nine rating screen; and, two screens of eight rating cemented together would act as a sixty-four rating screen.

If a camera is outfitted with the following ray screen: One of four rating, one of eight rating, one of sixteen rating, and one of two seventeen rating screens cemented together acting as a two hundred and eighty-nine rating screen (being four in all), there can be had eleven additional different ratings made up by combinations as follows: A four and an eight, giving a rating of thirty-two; a four and a sixteen, giving sixty-four; an eight an a sixteen, giving one hundred and twenty-eight; a four and a two hundred and eighty-nine, giv-

IN CATARACT GULCH—October 15th, 1:31 P. M., actinometer time 7 seconds, stop U. S. 16. Wynne plate speed 192, 8¼ inch lens, two 16 and two 8 times filters, Cramer Spectrum plate, twenty minutes and thirty seconds exposure. Formula: $\frac{7\times16}{192}\times1.03\times16384\times{}^1/_8=1230$ seconds.

A TYPICAL EXAMPLE—November 15th, 12:20 P. M., actinometer time 8 seconds, stop U. S. 128, Wynne plate speed 192, 7⅞ inch lens, one 16 and one 8 times filters, Cramer Spectrum plate, one minute and thirty seconds exposure. Formula: $\frac{8 \times 128}{192} \times 1.06 \times 128 \times 1/8 = 90$ seconds.

ing one thousand one hundred and fifty-six; an eight and a two hundred and eighty-nine, giving two thousand three hundred and twelve; a sixteen and a two hundred and eighty-nine, giving four thousand six hundred and twenty-four; a four, an eight and a sixteen giving five hundred and twelve; a four, an eight and a two hundred and eighty-nine, giving nine thousand two hundred and forty-eight; a four, a sixteen and a two hundred and eighty-nine, giving eighteen thousand four hundred and ninety-six; an eight, a sixteen and a two hundred and eighty-nine, giving thirty-six thousand nine hundred and ninety-two; and a four, an eight, a sixteen and a two hundred and eighty-nine, giving a total rating of one hundred and forty-seven thousand nine hundred and sixty-eight.

To the data given under each print reproduced herewith is appended the formula on which the exposure was based. Taking that accompanying "A Typical Example": 7 is the Wynne actinometer reading in an open sunshiny place, as determined by holding the meter in the shade of the body according to the directions, and the multiple 128 is the U. S. stop used. The denominator 192 is the Wynne U. S. plate speed that I use for exposures on objects not in direct sunshine, as are near portions of this subject. The factor 1.06 is the ratio of the square of the focal length of the lens at equivalent focus, divided into the square of the actual focal length of the lens during exposure. The equivalent focus of the lens was seven and seven-eighth or 7.875 inches. As racked out to focus this view the focal length became 8.10 inches and the square of this latter, divided by that of the former, gives the factor 1.06. The next multiple, 128, is the product of multiplying together the ratings of the ray screens used, in this case 16 and 8, as indicated. The remaining multiple,

1/8, is the factor required when using multiple filters with the Cramer Spectrum plate, the one employed in this case. In one of the formulas there is an additional factor or multiple used, namely 4. This because, using only the back combination, the focal length was doubled and the required exposure consequently quadrupled.

Focussing can be done without the ray screens and thereafter the focal length be changed by the sum of the thicknesses of the screens, increasing the focal length if the screens are back of the lens, and decreasing the focal length if the screens are on the front of the lens. If the screens are placed on both back and front of the lens, the focal length is not to be changed if the thicknesses are the same, and if the thicknesses are different, the focal length is to be changed by the amount of the difference of the thicknesses of the ray screens. For this purpose a scale of inches divided into tenths, attached to or engraved on a convenient part of the camera bed, is useful, assuming that the thickness of the several individual ray filters is known. Use thirty-five minute tank development at sixty-two and one-half degrees Fahrenheit and usual dilutions; a good developer for all the plates heretofore mentioned being Pyro-Acetone.

The Nude In Photography

By Sigismund Blumann

The ambitious pictorialist, having gained the pinnacle of his early ambition upon the winning of his second or third Salon Honor in the classification of Landscape, Marine, or Genre, seeks new fields in which to browse, new difficulties that he may conquer. And as likely as not he essays the nude. A difficult branch of limnistic art, to be sure. He goes to the joust unarmed and unshielded. For, mark you, he has all to contend against that has the painter, and then some. Passing over the difficulties of getting a good model,—good for "the altogether", and one willing to pose for a camera,—he must find a place where he can pose her. Indoors savors too much of indecency and outdoors is chilling to the luxurious lady who must brave the breezes unprotected while the photographer deliberately composes on the ground glass, debates about aperture and exposure, and waits for the loosened locks of hair to stop blowing, and otherwise prolongs the agony. Picturesque spots, also, are frequently too popular with picnickers. But these are difficulties which can be and which are, overcome. Follows:

What is merely nudity in abstract art is in constant danger of proving plain nakedness in photography. Nor should it take much deep thought or the elucidations of the Inexhaustible Critic of All Things to tell us why. The camera is too frank and too handy. It shows, for all the technique of the most skillful, a tendency to record, with disconcerting keenness, the body—not the soul.

With a very tangible model before him the painter works up, as his colors flow from the brush, a fervor that is impossible to the camerist. To the painter

the woman before him is only a suggestion. His freedom from mechanical limitations, his proficiency at capturing and portraying an ideal, his ability to change features, contours, backgrounds,—all are that much away from the physical. He approaches the subject with the impersonality of years of training. Ask any experienced model if she doesn't prefer standing for the painter or sculptor. Reflect upon her answer.

The photographer must depend so much upon the actual mood, pose, light, and surroundings, that psychology were defied if both he and his model could escape a certain physical consciousness that is sure to peep through, somewhere, somehow, in the final print. Nor do I refer to sex consciousness. Men, pure of mind and earnest of intent, are striving to make masterpieces of nude photography. And they are failing. Now and then a sweet, unawakened child is caught in a pose so innocent that Art is "shot on the wing of chance", as it were. Harvey showed us a young girl listening, enraptured to the song of a bird. Such an opportunity comes, it cannot be sought and found nor labored after.

As photographers will, however, continue to tread where angels fear to follow, it might profit us to examine what has been done by those who excel in this field. Kate Smith adopts child topics—fairy stories, legends and the like. Her backgrounds are simple bits of landscape that do not suggest a definite surrounding. A naked woman in a spot that one knows, is startling, to say the least. Fancy a fleshy Venus pirouetting in your garden between the familiar Acacia and the friendly Palm under which your children play: Though you made the picture yourself, and but yesterday, it should shock you today.

Mrs. Brigman renders face, texture, even form, so vague that all suspicion of facial or anatomical record is avoided. Therein lies her art. And I have heard her fuzziness criticized! The superlative skill with which she weaves design, moods, and tonality, about a nude figure is potent for the establishment of the right of photography to depict the nude. But there is only one of her.

Which leads to the humorous thought that the best workers in the nude are women. Can it be that some unconscious, irradicable quality in the male, unexpurgated, standing by like a demon to curse the best intention, breathes upon the plate.

The Hindoos believe that long fasting, much solitude and meditation, and great suffering, are indispensible to the making of a holy man. They have the wisdom of ancient civilization. It is a good rule as it makes a trial too severe for the insincere to essay. Our religions are as facile as the camera. We may become holy by assumption, presumption, or assertion. Let us see what more drastic requirements might do in nude photography. Let us demand that, before hoping to make works of real worth in this class, the man study ten years under a master, in company and environments where any sacrifice is deemed worth making for arts' sake; that want and suffering shall be experienced, without complaint, for the sake of an ideal. Did this not always refine the artist it at least should bar the tired business man with his camera from that doubtful pastime to which his wife seldom gives a whole-hearted acquiescence.

Prudishness has nothing to do with these contentions. I know too well the old retort that modesty and indecency are all in the eye of the beholder. That might also be said by the fellow who, expectorating in a heavy wind, lands me in the eye with a part of his quid. Inelegant but—"Touche". The facts are that men have approached the sacred precincts of art, that holy of holies, the Nude, unprepared. They are wasting talent, time and materials. They are not making an effort to prepare but are experimenting. As if the ideal could be compounded in a laboratory. All the laws of form, composition, and the rest, cannot help them to make the lens pierce the flesh and capture the spirit. They must cultivate something at which they are perhaps inclined to laugh,—a reverence, not the less real that it is not religious. In closing permit me to remind those who have seen it, and to describe to those who have not, one of the most exquisite bits of statuary at the Panama-Pacific Exposition. It stood on the most frequented path, one just outside the Palace of Fine Arts. A nude young man walking, his arm about the waist of a nude young woman. He is looking down at her with a holy tenderness that makes one feel that God still lives in humankind. And she looks up into his eyes with a pure innocence and trust that is alike inspiring. This might have been placed on an altar. What had marble, or chisel, or the hand of man to do with the essense of it? Was all this goodness merely an attribute in my eye? I should be overproud to believe so,—but I am modest. Here was the soul of virtue, the true greatness of art, yet thousands of sculptors, with all their training might try for the same and fail. It was not skill, it was not training, it was not because of models who stood and looked just so. It was something of each of these, but mostly it was that something within the artist which I advise you, Mr. Photographer, to cultivate. And when, happily, you have done this, may Fate, such models as you can get, and your camera, be good to you.

COMING FOR THE FLOCK By GEORGE M. CROWE

Photographing The Wildwood Flowers

By John Bieseman

With Illustrations by the Author

Comes o'er the heart a rapture sweet that will not be denied,
As Spring invites our steps to wend along the Countryside.
The adder's tongues, the trilliums, the blue bells and the rues,
Spread carpets and hang festoons gay in eye entrancing hues.

Those who enjoy the recreation of a walk or jaunt through a woodland region, should avail themselves of those few weeks in Spring when the slopes and vales are carpeted with the early wildwood flora. While under foot may be still moist and full foliage not yet at hand, the trees are in their first stage of bursting into a wealth of green, emitting a fragrance that is particularly enjoyable at this time of the year. The migatory birds have commenced to arrive from their winter's sojourn; and, with the help of the permanent residents, add to our delight by their pleasing melodies.

As to the dates on which each variety of wildflower can be looked for in bloom, it would be difficult to be exact. A severely cold winter or an exceptionally mild one may, at times, either retard or advance the blooming time a week or more and the date also varies with the locality. Roughly speaking, the liverwort and claytonia blossom the third week in April; the Adders-tongue, bloodroot, rue, anemone, trilliums, blue violets, white hearts, and saxifraga blossom a week later. The first week of May the wild phlox, cowslip and white violets appear, closely followed by innocence, blue bells, yellow violets, blue larkspur and wild geranium; mandrake and solomons seal bringing up the rear the latter part of the month.

Orthochromatic plates should be used exclusively, the double-coated kind by preference. A calm day should be chosen, one on which the Spring breezes are at rest; and, it is advisable to avoid the middle hours of the day, those between ten A. M. and two P. M., particularly as the wind seems more prevalent at that time. In order to secure the required depth of field for our subjects so near the camera, a time exposure is frequently necessary, while good texture in the flowers also necessitates full exposure. As to backgrounds, it is seldom that a natural one can be appropriately used, one that will record the detail in floret, bud and leaf. It is therefore advisable to have suitable backgrounds at one's disposal. A sheet of cloth with its two ends tacked to stakes that can be pressed into the ground, bringing the cloth taut, may seem feasible and convenient in carrying; but such a background is rarely without its folds or creases, particularly after it has been rolled up a few times. A cloth hung over a straight pole, the ends of the latter supported by forked sticks stuck in the ground, would be seemingly satisfactory, but the same creases make their

WILD LARKSPUR—At 2½ feet, Ortho plate, 3× filter, f-22, 8 seconds.

ADDER'S TONGUE—At 15 inches, Ortho plate, 3× filter, f-16, 4 seconds

BLUE BELLS—At 2½ feet, Ortho plate, 3× filter, f-16, 1 second.

appearance as the cloth is folded a few times. Others may be able to manage a cloth background successfully, may find a kind that does not wrinkle, but I much prefer such a one as needs no folding or subsequent stretch to obtain a flat, even surface. Sheets of cardboard, 18x20, or even larger, are what I find the best. The size permits of their being carried in a shawl strap, making a neat packet. Sheets of thin sheet metal are also well adapted to the purpose, and I have even carried a pane of double strength glass, on different trips, without breakage.

The backgrounds should include four effects, black, white, and two intermediate shades that we can call dark slate and light slate. These shades can be appplied, one on each side of two card or metal sheets, either by pasting

COWSLIP—At 2 feet, Ortho plate, 3× filter, f-22, 4 seconds.

WHITE HEARTS — At 15 inches, Ortho plate, 3× filter, f-16, 3 seconds.

SAXIFRAGA—At 18 inches, Ortho plate, 3× filter, f-22, 7 seconds.

on paper of the requisite color, or by painting. If the latter method,—perhaps the most efficient, be selected, proceed by getting a small can of ordinary black and another of white paint, selecting a kind that dries without a gloss. The two shades of grey or slate are obtained by mixing the white and black in varying proportions. Backgrounds produced by painting can be readily renewed, while the desired shades in paper are not always within reach. Equipped with the four shades, on two different panels or backgrounds, any subject, whatever its color may be, can be so rendered as to stand out in relief, regardless of the natural background behind it. A little experience will enable one to select the shades that give the most desirable variation of tone between subject and background.

White hearts, wild phlox and wild geraniums are best rendered with the dark slate as a background, while the wild blue larkspur demands the lighter shade. Blue violets and adder's tongue require a white background but for all the rest that I have mentioned a black or fairly dark ground is best suited. Consideration should be had for the foliage as well as the flowers in selecting the background, the necessity of securing some contrast extending to both.

WILD GERANIUM—3 feet, Ortho plate, 3× filter, f-22, 6 seconds.

YELLOW VIOLETS—At 18 inches, Blue Label plate, f-22, 10 seconds.

Flowers, unsupported by visible stems, are not satisfactory. However, as leaves, by their varied position and comparatively greater display, present both well lighted and shadow sides, the need for contrast is not so great.

Where the plant has a height of about two feet, the camera can generally be used on its tripod; bringing only the first or upper section of either the folding or sliding legs into play. If such a procedure does not permit of the camera being lowered to the required plane, a light piece of board can be used. This need not exceed eight inches in width, and it can be of such a length that it packs neatly with the backgrounds in their carrying equipment. This board should have a narrow cleat nailed at such a distance from each edge as to form a track between which the camera can slide, permitting the latter to be set closer or farther from the subject, as required. A slot along the center will accommodate an extra tripod screw and permit the camera to be clamped where wanted. A certain part of the track can be used for a scale to indicate where the camera is to be stationed and the front extended for subjects at varying

WHITE VIOLETS — At 15 inches, Ortho plate, 3× filter, f-22, 5 seconds.

INNOCENCE—At 18 inches, Ortho plate, 6× filter, f-16, 3 seconds

WILD PHLOX—At 2 feet, Ortho plate, 6× filter, f-22, 5 seconds.

distances; these marks, of course, should not be made until a subject at a known distance has been properly focussed on the screen. This board may be adjusted at the desired height by placing under it anything that is available.

Where there is a choice it is always best to select an individual clump that has all its leaves and branches as near equidistance from the lens as possible. This will make it much easier to get all parts in good focus. One who has not done much of this work will be surprised at the small depth of focus available with the subject so near the lens. A straggling branch that extends too far forward or that destroys the symmetry, can be generally severed without leaving any trace of its removal. It is not advisable to attempt any rearrangement of the branches to improve the composition, as they are inclined to move into their former position, during a time exposure, and thus produce a blurred image that may spell ruin for the picture.

Using a large stop, so focus the subject on the screen that some prominent part a little forward of the central plane, is sharp. Next gradually decrease the size of the diaphragm, watching the screen to see when the definition has

SPRING BEAUTY — At 18 inches, Blue Label plate, f-16, ½ second.

LIVERWORT—At 18 inches, Ortho plate, 3× screen, f-16, 1 second.

TRILLIUMS — At 4 feet, Ortho plate, f-22, 12 seconds.

reached its last stage of visibility, and then set the stop one size smaller, particularly should the image not be quite plainly defined as judged by the dim light of the last stop. A three times ray filter is suitable for most subjects but a six times one will be more uniformly satisfactory in holding back the soft, light shades of blue in such flowers as the cowslip, innocence and the like.

Orthochromatic plates are, of course, indicated and one should be very careful to give enough exposure to permit full action of the color rays to which even these plates are none too sensitive. It must also be remembered that in photographing near objects the focal length is materially increased by racking out the lens, the f value of the stops being decreased accordingly. If the sun be shining on the subject, one of the backgrounds can be used as a shade. Even when sunlight does not reach the subject, a shade at one side or a reflector at the other, or both, may help to avoid too flat a lighting. For the best results a flower or plant requires a soft side light from a little in front; in fact, just such a light as is wanted in portraiture. Too flat a lighting is unsatisfactory, as is also one from behind or from directly in front.

If the worker has an equipment for enlarging he can use his camera at twice the distance from the subject, permitting of more even focussing, the depth of field being greatly increased. This last permits a larger stop, one requiring an exposure time of one-half or less. This is an important item as it provides less chance for an unexpected breeze to cause motion. The subject, of course, will occupy a correspondingly smaller part of the negative, but making the prints by enlarging will give excellent results within reasonable limits. In printing from flower negatives, either by contact or enlarging, a grade of paper should be used that will bring out the maximum amount of detail, as lack of texture and all harshness should be avoided.

An Orchard In Bloom

By B. F. Loomis

With an Illustration by the Author

As this is the season of the year when the orchards are coming into bloom, pictures of such subjects are the order of the day. As one of my own photographs of this kind has been widely circulated and highly commended, my fellow readers might be interested in it and a description of how it was secured.

The town of Anderson has long been known as "The Prune Center", and, as the Shasta County Promotion and Development Association wanted a picture of a prune orchard in bloom, for advertising purposes, I was delegated to get it for them. Accordingly, I scoured the country for a few days, trying to locate the most promising subject for such a picture. Being not well versed in the matter of the various characteristics of different kinds of fruit trees, but wanting something that would make an exceptionally fine picture, a cherry

A PRUNE ORCHARD IN BLOOM"

orchard that I came upon seemed to be the best I had seen. Waiting until just as the sun went down, I photographed it, using a U. S. 32 stop and giving an exposure of four seconds on an Instantaneous Iso plate with a Bausch & Lomb orange-yellow ray screen. As can be seen, there are no harsh shadows and all the flowers came out beautifully, and the people for whom it was made voted it an exceptionally fine picture. It was promptly labeled: "A Prune Orchard in Bloom" and reproduced in thousands of circulars and booklets that were printed and distributed all over the country. Perhaps one in a dozen realized that it showed a cherry instead of a prune orchard, but the picture "went", just the same. I have since made 30x40 enlargements from this negative on Artura Carbon Black and the results are very beautiful; indeed, they leave nothing to be desired.

Very few who have not received an art education see its importance, and many are apt to think that anything is a picture if it be taken from nature and successfully developed. Now a photograph in itself is not a picture, it must not only have an idea and purpose, communicating a something to the person who sees it, it must have more, for a diagram or map may have all that. An essential qualification of the pictorial is the presence of beauty, sentiment, and feeling. These must be in it, according to the subject. To produce these the artist must possess those faculties of mind, or he will never see them in nature, and far less awaken them in others by anything he may do.—NORMAN MACBETH.

We shall not go far astray then in saying that the stronger part of art is not its language, but the ideas which that language expresses; that it is not so much the technique, brush work, or handling for their own sake as for the conceptions they can present to us.—JOHN C. VAN DYKE.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

TESTING A CAMERA BELLOWS FOR LEAK: Rack out the bellows to its full extension and in a very dark room put a pocket "flashlight" inside and project the light towards the suspected holes, generally located in the corner folds. By looking at the same point from the outside with the eye on a line with the light, any hole or near-hole will show plainly.—Larrance Page, California.

A GOOD NEGATIVE HYPO BATH: H. M. Hemperly, chief operator for Gilbert & Bacon, Philadelphia, recommended the following; and, notwithstanding it was published nearly or quite thirty years ago, it should be as good to-day as then, and certainly worth trying. Take thirty-two ounces sulphite of soda solution, hydrometer test sixty degrees, add very slowly one ounce of sulphuric acid, and then twenty-four ounces saturated solution chrome alum. When this is mixed add it to one and a half gallons of a saturated solution of hypo-sulphite of soda and it is ready for use. For a smaller quantity reduce proportions accordingly. As with any fixing solution, the negative should be left in this bath a few minutes longer than is required to clear it. This is important, as the permanency of the negative depends thereon. A grooved box should be used to fix in, otherwise the negative may suffer from spots and precipitate.—T. E. P., California.

MAKE SOME PINHOLE NEGATIVES: Now that the soft-focus lenses have somewhat diminished the objection to lack of sharpness, one can find much enjoyment in a few experimental pinhole negatives. Remove the front and back combination of your lens, from a black card cut out a circular piece that will fit snugly in place against the diaphragm wings, and with an ordinary pin make a hole in the center of it, using as much care as possible to get the hole clear and smooth as to its edges. Then make a few landscape exposures, bearing in mind that the pin-hole has no focus and that its small size necessitates quite long exposures. As a rough guide and with the pinhole about six inches from the film or plate, an ordinary landscape requires about seven seconds at noon in mid-summer. This, of course means about ten seconds a little earlier or later in the day and fifteen seconds in the morning and late afternoon hours. Winter months require doubling of the time, or a little more, while spring and fall require intermediate times. The ideal pinhole is one having the thinnest possible edges, such as one might make in thin metal, a piece of blackened tin foil being a step in this direction that can be tried.—T. S. S., Oregon.

It does not follow that the artist should consider his public, or try to please others than his own best self; but if, in pleasing his best self, he does not succeed in pleasing others, in the past, the present, or the future, he will certainly not have produced art.—GALSWORTHY.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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Using Ray Screens In Multiple

When we, a few years ago, published the original article covering Mr. Hood's method of dealing with subjects having extreme contrast, a number of readers were impelled to write and explain that the theory was all wrong, that the use of ray screens in multiple was impractical, that the good rendition shown must have resulted from or been achieved through long exposure, careful development, or some other agency. A few, ignorant of Mr. Hood's capabilities and integrity, assumed that his experiments had either been carried out in a careless manner, the results thereof incorrectly noted, or the deductions therefrom not made intelligently. But none of these readers did either Mr. Hood or ourselves the kindness of supplementing their criticisms with examples of work that, even in a small measure, proved their contentions. Neither did they offer evidence of the fact that their own general knowledge of the subject was very extensive. When it is taken into consideration that quite authoritative writers go to some length to describe the effect certain ray screens have in holding back the tendency of plates towards a supersensitiveness to ultra violet rays, while another writer is given space in a well known scientific publication to explain that photographic lenses do not allow such rays to reach the plate, it seems quite possible that there may be well drawn deductions made that do not agree with the generally accepted ideas on the subject of ray screens and their behavior. When these deductions are based on experiments as carefully and painstakingly made, as we know were those of Mr. Hood, and particularly when the results achieved by following the plan such deductions suggest are as gratifying as they certainly are in his case, those who would criticise can hardly do less than bring forward some proof of their claims to consideration. This last might be either in the form of concrete examples showing that the method advised does not give the results with which it is credited, or that like results can be secured in a different and perhaps more logical way; or, again, should the critic be one who has himself given the subject individual study and thought sufficient to enable him to do so with some degree of authority, by giving explanation of the fallacy, if there be one, in such a way that easily made experiments will verify his contentions.

Partial reversal of the image as a result of long exposure, the cutting out of some small part of the entire spectrum with incomplete cutting out of the blue and violet that characterizes the behavior of some forms of ray filters, the comparatively wider latitude that an emulsion displays when dealing with a contrasty subject as against a more uniformly lighted one, the fact that certain rays at or near the ultra-violet end of the spectrum are as persistent in the shadows as in direct sunlight; these and other factors not usually considered in general discussion of the matter may all have no small bearing upon the sub-

ject. They at least merit consideration before we can say that Mr. Hood's method is entirely wrong, or for that matter, entirely right. In brief, while Mr. Hood does not seek to concern himself with fruitless argument or controversy, preferring rather the less trying position that involves only the pointing of the way in which his results are secured, we feel sure that he will gladly assist us in making clear any part of his procedure that is not perfectly intelligible to the reader, or at least not clear enough to enable the latter to satisfy himself by an actual trial of the procedure advised. As for ourselves, as we have suggested, superficial criticism has no interest; but intelligent discussion, based on some knowledge of the subject or backed up by the results of actual experiments, will be welcomed and given space in our pages. The subject is one that holds much of interest and one that has much to do with the securing of good results under trying conditions. Intelligent discussion should therefore bring forth something of value, regardless of the outcome. If Mr. Hood is right, the fact will be emphasized; if he is wrong, a better method of securing his good results will be made more widely known.

California In The Pittsburgh Salon

The catalogue of the recent Pittsburgh Salon shows that two hundred and eighty-two pictures, contributed by one hundred and five workers, were accepted, out of, we are advised, some eleven hundred pictures that were offered. Seventy-five contributors failed entirely and those who did succeed in having their pictures accepted had even a larger number of rejections to their credit. Fifteen per cent of the successful contributors are residents of California who are represented by even a larger per cent of the total number of pictures accepted. This is most gratifying and shows conclusively that our California workers are capable of and willing to do their share in making a success of any photographic salon that has their approval. This last is enjoyed by the Pittsburgh Salon by reason of the kindness and consideration shown those submitting pictures and we feel quite sure that they can count on the continued support of the workers here on the Pacific Coast.

Mr. Leavick In The East

S. L. Leavick, of the Zellerbach Paper Company, is on an extended trip through the East. Mr. Leavick has achieved a marked success as manager of the photo mount department of his house, through quick service and fine goods and an effort will be made to arrange for even more promptness and efficiency.

Wrong Credit Given

One of the illustrations in our last issue, that on page 105, entitled "Sunlight, Shadow and Clouds," was wrongly credited to Forman Hanna, instead of being allowed to play its intended part, that of showing an example of Mr. Whyte's work in connection with his excellent article: "The Troubles of a Kodak Finisher". Our apologies have already been tendered and most graciously accepted.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Development With Two Separate Solutions

Development is of all the photographic processes that one upon which the greatest changes have been rung. If we turn back to the textbooks of a decade or two ago we find that they are filled with elaborate descriptions of the way in which the developer has to be modified to suit some particular conditions, or to adjust it to counteract errors that have been made in the exposure. Much of this we seem to have left behind. Such modifications are now rarely heard of, and are probably only practised by a few representatives of the "old school". We have gone to the other extreme; and in doing away with complications which were of no utility it is possible that we have lost sight of some which at times might be extremely valuable. One of these is that which we propose to describe briefly in this paper, namely, development with two solutions.

The particular feature about this method is that, unlike those which depend upon alterations in the composition of the developer as a whole, which cannot affect the density ratios, this is a kind of automatically applied local action which does affect those ratios, tending to give proportionally greater development action in the least exposed parts than it does elsewhere. Moreover, as the effect of prolonging development when this method is adopted is to continue the action of the developer upon the less exposed parts, after development has practically ceased in the fully exposed parts; we can exercise a certain control over the effect by the length of time that the development is allowed to go on, contrast in the shadows being increased without fear of the high lights getting too dense. It is therefore useful when the photographer has to deal with subjects in which the contrasts are extreme. Perhaps the reason for this will be more apparent after the method of working the process has been described.

Two-solution development can be used with almost any of the developers that are commonly employed. It may not be practicable with amidol and those compounds which, like it, do not require an alkali to render them active, but to any of those which do, the system is applicable. The developer itself—in the stock solutions, that is—must be kept in two solutions; it is obvious that a ready-mixed single solution could not be used. It is with pyro-soda that it is likely to be most frequently applied, and the following account of the *modus operandi* deals with that developer.

Assuming that the pyro-soda developer in use is kept in the form of a ten per cent stock pyro solution preserved with metabisulphite, or some similar salt, and that the alkali or No. 2 solution is one of a strength of a pound of sodium sulphite and a pound of sodium carbonate dissolved to make eighty ounces in all, we make the working pyro solution by taking a hundred and twenty minims of the stock pyro and diluting this to make three ounces in all. This gives us a bath of pyro containing four grains to the ounce, which may be taken as the weakest that is at all likely to be required. The strongest might consist of one ounce of the stock solution diluted to make three ounces, or a strength of sixteen grains to the ounce, but with a very strong pyro solution the particular advantage of two-solution work is lost. The alkali or No. 2 bath may consist of one part of the stock sulphite and carbonate solution with two parts of water.

The plate is first placed in the dilute pyro solution, and the dish rocked until there is no doubt that the whole of the surface has been well wetted and is absorbing the liquid. The dish can be covered, as there is nothing to see, unless it is to make sure that the liquid is flowing all over the film, and with occasional rocking the plate may remain therein for five minutes. Longer than this will do no harm, and if there are sev-

eral plates to develop one may be soaking in the pyro while the other is being brought out in the alkali. On taking it out of the pyro, the surface is rinsed for a moment only, and the glass side as well, so that the only pyro carried into the alkali is that which is contained in the pores of the gelatine. At this point no image will be visible, but on placing the plate in the alkali solution and gently rocking the dish the image will make its appearance very quickly. The subsequent action is very similar to that which takes place in the ordinary form of development, except as regards the gradation.

It will be apparent at once that when a plate is developed in this way there is a limit set upon the extent of development which is possible by the exhaustion of the pyro solution. A fully exposed part of the negative is developed as far as the limited allowance of pyro which it has absorbed will allow the action to go, but when this has been used up the development in that part will cease. But in a part which has only been slightly exposed—which will have absorbed just as much pyro—the pyro will not be used up anything like so quickly, and so the action can go on for a much longer time. A little of the pyro will diffuse out into the liquid generally, so that one cannot expect to get quite abrupt stoppage, but in general what has been described takes place.

The result of carrying out development in this way is that after a certain stage in the operation has been reached, the high lights of the negative cease to gain density, whereas the shadows and half-tones continue to do so for some time longer. When the action has gone far enough the plate is taken out and fixed.

While this describes the process in outline, it may be pointed out that the photographer need not keep to the proportions given for the dilute pyro solution, but may vary them as observation indicates. It will depend, to some extent at least, upon the capacity of the film on the plates which he is using to absorb liquid, and different makes differ in this extent. If he finds that he cannot get the density he requires, no matter how long, within reason, he allows the alkali to act, it is an indication that the pyro solution must be stronger, while if he finds that the results are no different from what ordinary development would give, he may safely conclude that the pyro solution which he is using is too strong. One or two trials will soon show what strength is about right. There is no need for any very great precision in the proportions, as the operation is watched and terminated when it is seen that the action has gone far enough.

It may be added that his method of development is a very economical one. The pyro solution can be used over and over again, as long as enough of it remains to cover the plate; but in its diluted form it is best not to keep it over from one day to the next, as oxidation is sure to take place and there will be a risk of staining, even if the pyro has kept its energy, which does not always happen. A fresh alkali solution will be required for each plate.—L. J. North in *Photography.*

Tone Reproduction

The subject of tone reproduction and its limitations was chosen by this year's Traill-Taylor Memorial lecturer, F. F. Renwick, because, he said, it seemed to offer some common ground on which the pictorial and scientific worker could meet. The lecturer asked in the first place, what was the extreme range of tones occurring in Nature? And, in the next, how was this range related to our means of reproducing them in pictures? The range of tones in most natural objects was as narrow as from ten to one. Extremely flat scenes in which there was atmosphere might even have a range as low as two to one. When the sun was shining on a landscape, however, the range of brightness might be thirty to one, and might even extend to sixty to one should there be a heavy shadow in the foreground as the one extreme, and a portion of the light source, as, for example, the illuminated sky, as the other; but landscape subjects which exceeded the range of thirty to one were in quite a small minority.

What range, then, had we in our various printing processes? In this matter we were only limited by the deepest black we could produce photographically, and the purity of the paper we could put it on. The majority of black pigments, however, did not carry us far enough, and the same was true of all photographic papers where a matt surface was employed. In order to get a range of thirty to one or over, a more or less glossy surface had to be resorted to. With matt

photographic papers the range was usually only sixteen to eighteen to one, but there was no difficulty in getting the two extremes of an ordinary subject on a glossy or semi-matt paper.

Mr. Renwick went on to inquire how far our present photographic processes can give us correctly graded prints, and he showed that even if we could make a perfect negative in the Hurter and Driffield sense, that is to say, a correctly proportioned inverted replica of the tones of the subject, we could not produce a perfect print unless we confined ourselves to the middle tones of the paper. He showed the curve of gradation of an ideal paper, as yet uninvented, compared with the much less perfect curves of commercial papers, and concluded that only subjects of a quite limited range of contrast are within the bounds of scientifically correct reproduction. The tone intervals on printing papers were never even approximately proportional to those of the negative if the latter were sufficiently "contrasty" to employ any considerable range of the paper. For this reason careful study of the characteristics of both plate and paper was necessary, and their peculiarities should be combined with a view to arriving at the desired end.

Turning to a different subject, Mr. Renwick pointed out the difference between things as they are and things as they appear to the eye. Except for purely scientific record, what we wanted to reproduce were the tonal values of our subjects as they looked to us. Our reproductions should, therefore, represent the psychological and not the physical tone values of the original scene. Much of the trouble as between pictorialists and scientific workers was due to the fact that the former referred to psychological tone values, and the latter to scientific. Every scene underwent a more or less marked change both of key and relationships when the intensity of the illumination by which it was examined was altered. And here came in the value of the very errors of our medium. If our plates and papers gave a strictly proportional rendering of tone values it would be impossible to obtain such subjects as the glitter of the water in lake studies, the clouds in sunsets, and the points of light in night scenes. The failure of the materials from the narrow scientific standpoint had a value from the artistic point of view. Mr. Renwick said that he believed our scientific photographers had far too pronounced a tendency to dogmatize about the right and wrong, the correct and incorrect, when in sober truth they had a great deal to learn from the laboriously acquired experience of pictorial workers.

The lecture was listened to very appreciatively by a large audience.—*Amateur Photography.*

Tone Values

The photographer who attempts anything in the nature of pictorial work should understand something of tone values. It is not absolutely necessary, because certain famous pictorialists have notoriously utterly disregarded the proper translation of color into a corresponding or suggestive monochrome, relying for their effects on a decorative filling of space. But in the main, pictorial photography demands that the tones of the photograph shall suggest at all events, the tones of the subject.

We say "suggest" for more than one reason. In the first place, the representation of nature on a flat sheet of paper must necessarily be a matter of illusion. It is impossible to give anything like the extended scale of tones seen in nature when white paper is our highest light and some black pigment our deepest shadow. We must rely on various artifices—call them tricks, dodges, or what you will—in order to give an impression of what we have admired in nature.

Further, no one who has seen many of the results can be in any doubt that the *measured* photograph often does not suggest the tones of the subject. We remember hearing a scientific worker make the prophecy in 1902 that in five years no exhibition judge would look at a photograph not taken by color-corrected methods. That prophecy is nearly ten years over-run, and we venture to say that the proportion of pictorial results, the outcome of the orthochromatic or panchromatic plate, with its scientifically adjusted light filter, is even today a very small one. The scientist differentiates between the *brightness* of light reflected from an object and the *color* of light reflected, that is, the *quantity* and *quality* of light. The differences of quantity he calls luminosities, the differences of quality he calls color contrasts. But the experienced pictorial worker knows that if he renders with his color-sensitive plate and its adjusted light filter a deep blue sky,

he will suggest a thunderstorm rather than summer blue, while the fresh green meadow, plentifully studded with golden buttercups, will look like snow. The pictorialist is not satisfied with the scientifically correct rendering of the luminosity when that rendering results in a *suggestio falsi.*

We do not think this point needs laboring, but it may be of interest to mention that many of the most expert picture copiers, men who photograph the paintings sent to the Academy and other important exhibitions, are in the habit of using various light filters, frequently liquid filters, so that the absorption may be modified to suit the original being copied.

It is sometimes urged, however, that there can be no standard applied to the suggestion of a color by a tint of monochrome, whereas a light filter and the plate it is adjusted to will—with reasonable care in the use thereof—give a proper record of the luminosity. It may be pointed out that nobody is able to say, on looking at the photograph, whether the rendering of the luminosity is correct or not. Put up two patches of color, a bright yellow and a dark blue, and photograph them with an ordinary plate, and on comparing the resulting print with the original, anyone will admit that the rendering is wrong. Use a color-corrected method, and anyone will admit that the rendering is much better and truer. But take a gray and an orange of equal luminosity, and photograph them with color-corrected methods, and the resultant print will show two equal tones of gray. No one will accept such a result as suggesting the original subject, because no one would *feel* that the two original patches—the orange and the gray—were equally bright. In other words, the human eye does not and cannot separate luminosity and color contrast. The scientist knows the extreme difficulty of matching the luminosity of a color patch with the luminosity of a patch of neutral gray, even when he has every possible aid, and that the results vary so astonishingly that many determinations are usually taken and an average struck. This being so, does it seem at all unreasonable that the pictorialist should decide to adopt the method which gives a result which looks right, rather than the method which gives what we have called a measured photograph?

But do not let the reader assume that we have no use for the scientist's adjusted filter. There are some subjects for which it will prove useful, and indeed we can conceive of subjects which would be satisfactorily rendered from a pictorial point of view by the use of what we may term deeper filters still. Our whole point is that just as the painter is not expected to represent with scientific accuracy the exact shade of green of, let us say, a group of ash trees, so the photographer should not be tied down to any exact shade of gray or other monochrome with which he elects to represent this green. In both cases the suggestion must be a true one.

The crux of the whole matter lies here, however. Photography suffers from an overmechanicalness. To use the color sensitive plate and its adjusted light filter always would tend to maintain, if not to increase, that mechanicalness. What is wanted is freedom. The photographer can only exercise this freedom properly, however, by knowing from experience the effects he will obtain with his various light filters, and by closely observing the tone values in nature. The problems are almost of infinite extent, and, to begin with, it will be wise to keep to two or three filters, such, for example, as the well known K1, K2 and K3. But the most important points are the observation of nature and the careful comparison of the results obtained with the subject to see whether the illusion is satisfactory.—*Amateur Photography.*

Enlarged Paper Negatives

For negatives which one prizes and would like to print on a larger scale than usual, there is nothing to equal the method of making an enlarged negative, which can then be worked up, should this be thought desirable, and printed by any process we think fit. The cost of glass plates for making such negatives is a serious one; but nobody who has employed ordinary bromide paper for the purpose successfully—and that it is not difficult I hope to show—would ever think of using glass.

Not only is bromide paper very much cheaper; it is also easier to handle, there is no risk of breakage, it can be rolled up and stored away much easier, and it makes handwork a very simple matter. The only drawback is that it does not print quite so quickly as a glass negative; but the dif-

ference is not so very great. Besides, quick printing in the case of a small negative from which we wish to make a number of copies may be a valuable quality; but with a large negative, from which we are not likely to make more than one print at a time, it is negligible.

Before describing the *modus operandi* in detail, it may be as well to have a few words on the materials used. Any good bromide paper on not too stout a substance of paper will do very well. The surface is not very important, provided it is not rough. Glossy, I do not care for, as it is more liable to friction marks, but "carbon surface" or "semi-glossy" and "platino-matt" I have used and found perfectly suitable.

For a developer I never employ anything but amidol, of the same formula as used for ordinary enlargements; but there can be no reason that I can see why pyro-soda should not be used by those who like it and are accustomed to it. The browner image should give a deposit of greater density in the printing frame. It would be most important, however, not to stain the paper to the slightest degree, and this there is no risk of, if amidol is used.

The first stage in making an enlarged negative is to make a positive transparency from the original negative. Here my experience is that there is one kind of plate that is *not* suitable, and that is a transparency plate. An ordinary or even an extra rapid may be used; but if a plate of the lantern or transparency type is employed, the enlarged negative is sure to be wanting in gradation. I generally have a box or two of "ordinary", that is to say slow, plates, backed, which are kept for the purpose of transparency making; but in default of them have used the plates from my hand camera, even orthochromatic ones.

A transparency may be made from the original small negative either by contact or in the camera; the former is the simpler plan, and is generally all that is necessary. In the dark room, the negative is put into a printing frame, its surface gently dusted, the ordinary plate is laid on top of it, and the back of the printing frame is fastened. It is then slipped into a box while a candle is lit and given a minute or so to burn up steadily. Using such a plate as the Ilford ordinary, the exposure to the light of a single candle at a distance of five feet will be found to be from six or eight seconds upwards, according to the density of the negative. About half a minute is the most usual time, I find; but as it is of the very utmost importance to get the transparency just right, it pays to give up the first plate to a trial.

Having found the correct exposure, the transparency is developed with whatever developer may be preferred.

The exact depth to which to develop the transparency is a little difficult to determine at first. It calls for some knowledge to decide with certainty. This is one of the important points of the process; and so a slow plate is an advantage, as it allows us to use plenty of light in the dark room, and thus helps the correct judging of the density.

The exposure must be fuller than is needed for a lantern slide, and the highest lights of the subject must be distinctly veiled over on the transparency, or it will not be right. The image on the surface of the plate will look a little heavy and dark when development is complete, but it will not appear by any means so heavy as in ordinary negative-making.

It is my usual practice to make three or four transparencies, and then to pick the most suitable one for use. This is not so wasteful as it might seem.

In choosing the best transparency for use, all those which have been made are placed, film side downwards, on a sheet of white paper. The correctly exposed and developed transparency will be that one which, in these circumstances, looks distinctly heavier than a print from the negative should do, but not very much heavier. This is about as nearly as one can describe it. By selecting the transparencies in this manner, one soon gets to recognize exactly the kind which will give the best negative; and when this is recognized it is usually not a very difficult matter to work to that standard.

When once the right kind of transparency has been made, the rest is a matter of plain sailing. All we have to do is to make an enlargement from it on the bromide paper. Again, in doing this a fuller exposure should be given than would be the case if we were making a positive enlargement in the ordinary way. Quite one and a half times as long will be necessary, and the development should be full, so that there is at least some deposit everywhere, even in the deepest shadows of the subject.

The opacity of the paper makes it difficult to judge when the correct degree of density is obtained, at least by looking through it. One is particularly likely to go astray in changing from one make of paper to another. I therefore strongly urge the photographer who takes up this material for his enlarged negatives to make it a rule to be guided by the appearance of the front of the paper, just as when a positive print or enlargement is being developed.

It may be that the enlarged negative made in this way will give the kind of print required: but as the coating of emulsion on the bromide paper is much thinner than it is on a plate, it is possible that there may not be sufficient contrast. In such a case—and it is a very common one—the enlarged negative, after fixing, well washing, and drying, can be re-wetted and given an intensification, slight or more as necessary. The best process for this is that with mercuric iodide and sulphite.

By the use of this intensifier we can add to the contrast of the negative to any extent we are likely to require. The intensification can be done in daylight, so that it can be watched, and terminated at any moment. It gives the whole image a browner color than that which it was left with the amidol, so that the increased vigor is a little greater than it seems. Unless there is any strong reason for it, there is no need to put the intensified negative in developer again, as is sometimes advocated with this process.

My own method is to take out the negative when the action has gone far enough, put it in extremely dilute hydrochloric acid, one part of acid to sixty of water, rinse it well with this, and then give it half a dozen thorough changes of water, after which it is pinned up to dry.

Any hand work that may be required on the negative can then be done. The surface of the paper at the back takes pencil and stump very readily. I do not wish to lay stress on this fact, however, as I am not at all sure that it is an advantage. My own opinion, however, in spite of all that has been written in *Photography* and elsewhere, is that it is best to leave well alone. If the original negative is a good one, the result is not likely to be made any better by tampering with the enlarged negative. There it is, however; and those who fancy their powers of "control" will find almost unlimited scope for them on the paper surface.

There is not much that need be added on the subject of printing such negatives: except that I have not found a printing frame a necessity, at least in large sizes. A flat board like a drawing board may have one or two thicknesses of smooth, dry blotting paper laid on it; on this is put the paper on which the print is to be made, and the paper negative is laid, gelatine side downwards of course, on the top of this. Two drawing pins are then used to fasten all the papers together at one end, and a good stout sheet of plate glass is laid on top. The light in which all this is done will depend on the sensitiveness of the process that is used.

The board is carried out into the light for printing: and when it is necessary to examine the print it is taken indoors, the plate glass is lifted off, and the negative raised. The whole of the print can then be seen, the drawing pins being sufficient to prevent any shifting of the negative on the paper. This plan will be found to work quite as well as any regular printing frame would do; while the board and glass are much lighter, and the "frame" is a full view one. For carbon printing with an actinometer the drawing pins can be omitted, since with this process no examination of the progress of printing is necessary or even possible.

Much of the literature concerning paper negatives is occupied with the subject of greasing them in some way to make them more translucent. Some workers use them just as they are; but it is preferable to apply some form of grease to the paper, or the printing, especially in winter time, may be very tedious. It is very simply done. Putting the negative gelatine side downwards on a board, with a few sheets of newspaper to make a flat bed for it, a drawing pin is inserted in each corner. The back of the negative is then rubbed over with a rag moistened with ordinary kerosene (paraffin oil), and it is either left on the board for a few days, or else is rolled up and put away. The oil will gradually permeate the whole of the fibre of the paper and render it equally translucent all over.

The only objection that I have heard raised to this method of oiling is that with the lapse of time the negatives are apt to lose their translucency in parts or altogether. This is no great matter, since if this has happened all that has to be done to bring

back the translucency once more is to give them a fresh treatment with the kerosene and then to leave them for a few days as before. —B. E. Bowden in *Photography.*

A Substitute For Potassium Ferricyanide

Now that ferricyanide of potash has advanced so very considerably in price, photographers and process engravers are inquiring for a chemical that will replace it in the ferri-hypo reducer. The ammonio-cupric chloride and hypo reducer acts in a similar way to the ferri-hypo reducer, and is only one-third the price. It can be used for reduction in wet and dry plate negative making. In screen negative work it attacks the edges of the dots before the density is affected; in fact, it will do exactly what the ferri-hypo will do, and is more stable when mixed. The following is the formula employed at the school where it has replaced the ferri-hypo reducer:

A: Water .....25 ounces
Copper sulphate .... 1 ounce
Sodium chloride.... 1 ounce

When dissolved add sufficient .880 ammonia to clear the solution, which should be a rich, clear ultramarine color.

B: Hyposulphite of soda 5 ounces
Water .....25 ounces

For use take equal parts of A and B. The usual methods of intensification can be carried out after reduction.—W. J. Smith in *British Journal of Photography.*

X-Ray Stereoscopes

British Letters Patent No. 17,196 of 1915, covers the claims for a stereoscope for viewing at will laterally inverted or non-inverted stereoscopic pictures. Two relatively adjustable optical systems are employed, the one for viewing a picture in the usual manner and the other for inverting the images of the same picture without altering the position of the latter, i. e., left-hand portions are brought to the right, and vice versa; rear planes are brought to the front and vice versa, thus giving the illusion, in X-ray stereographs, that the picture had been taken after turning the patient over. For the optical system a set of magnifying lenses is used; for the other a tetrahedron and total reflection prism in conjunction. Issued to Louis Joseph Emmanuel Collardeau, 13 Rue de Navarino, Paris, and Jules Richard, 25 Rue de Melingue, Paris.

Plastic Celluloid

G. S. Thompson, F.R.C.S., writing in the *British Medical Journal,* describes a simple method of rendering celluloid plastic, so that it can be moulded into any shape for application in the tissues in certain parts of the body for certain conditions. This is to place the celluloid in ether solution, when in a few hours the celluloid will swell slightly and become soft as a jelly. It is then taken out of the solution, moulded into any desired shape, and set aside to dry. The celluloid regains its original thickness and general physical appearance, but retains the new shape imposed upon it. As ether is one of the most powerful bactericides it will effectively sterilize the mould and make it ready for insertion.

Safe Lights For Bromide Paper

It is not generally realized what a large amount of light can be used in the dark-room when working bromide paper. Provided it is of the right quality, the entire room can be flooded with bright yellow light that would probably frighten some of the old school who prefer to work even slow bromide paper in semi-darkness. One thickness of ordinary canary fabric with a strong light behind, can, of course, be employed; but I find that home-made safe-lights are very simple to produce, and both for bromide paper and even for plates admit a large amount of perfectly safe light. To make these I coat a piece of glass of the required size with a substratum of plain gelatine. This is done quite easily if the plate is warmed first, and the gelatine poured on carefully, as when varnishing a negative. When the gelatine has set hard and the plate is cold, it is soaked in a solution of ordinary yellow dye, which can be obtained in penny packets from the oilshops. A penny packet is sufficient to stain dozens of pieces of glass a bright canary yellow color that is admirable for the purpose. The best plan is to add a little formalin to the dye solution, and to dye two pieces of glass of the same size. When these are quite dry they are bound together face to face like a lantern slide, and admit a large quantity of light to the dark-room, which will be found perfectly safe for bromide paper. If a diffused light is preferred, a piece of thin tissue paper or papier minéral can be inserted between the two pieces of glass when

they are bound together. With the aid of a penny packet of ordinary red dye I have also made red safe-lights which, when tested, proved to be perfectly safe for non-orthochromatic plates.—B. in *Amateur Photography.*

Registration In Double Printing

So much importance is attached, and rightly attached, to the prevention of any movement between the paper and the negative in the printing frame when opening the frame to see how the printing is progressing, that it will no doubt come as a surprise to many to learn that by a very simple device it is possible to take the negative right off the paper and put it back again without the slightest fear of imperfect registration. Yet such is the case; and those who have occasion to use negatives of comparatively large size, such as whole-plate or over, may find it to their advantage to make use of such an appliance.

It can be made to serve several purposes. When a negative has to be printed with great nicety it is a help sometimes to be able to see the whole of the picture at once instead of only the half which the ordinary form of printing frame permits. With printing out processes, and, to some extent, with platinum, the effect of different shading devices for modifying the print can be seen, and so continued further or discontinued as necessity may require. When introducing diffusion by interposing bolting silk, matt celluloid, etc., it is helpful to be able to print the picture partly with, and partly without, such aids, and this with the ordinary form of printing frame is out of the question.

Working the 8½x6½ size and printing in platinum the following method has been found very simple and quite successful. No regular printing frame is required at all. The "frame" consists of a small drawing-board, about 12x9 inches, selected because its framed construction was a guarantee against warping. It was covered with a piece of sheet rubber 9x7 inches, cemented down; but this the writer is inclined to think is not at all a necessity. On top of this is a piece of thin clear celluloid, which is 10x8 inches, as it happened to be in stock. One long side of it is fastened to the face of the board, beyond the rubber, with drawing pins. Three fine needles are inserted through the rubber into the board, their tops being broken off, so that they project not more than an eighth of an inch, and small holes are cut in the sheet of celluloid so that it passed freely over the projecting needles. A piece of thick plate glass, 9x7 inches, completes the apparatus.

The needles are inserted in such a position that when a 8½x6½ lies centrally on the rubber two of them touch one of its long edges at about an inch from each end, while the third needle touches the centre of one of its shorter edges. It is obvious that a negative in such a position can be removed and replaced just as often as may be required, with the certainty that if it is pushed up against the three needles it will go into exactly the same place again.

To use the frame the celluloid is raised, a piece of platinum paper is put down on the rubber with its edges against the needles, the celluloid is brought down again, and its free end is fastened to the drawing-board with drawing-pins, or preferably, a bull-dog clip, so that it holds the paper flat and in place. The negative is laid on the celluloid and pushed up to the needles as described. For convenience they should project so far as still to be slightly above the level of the negative, but not above the level of a piece of plain glass which is laid on the negative. On top of all is put the plate glass, and the whole is put out to print.

If we wish to introduce matt celluloid, bolting silk, or ground-glass at any subsequent stage in the printing all we have to do is to lift off the glasses and the negative, put in whatever diffusing material we are going to employ, and then replace them. The paper does not shift, being underneath the transparent celluloid, which is not thick enough to have any injurious effect upon the definition. It is advisable to carry the whole arrangement indoors to observe the progress of printing.—*Photography.*

Illinois College of Photography

Fred S. Natusch, a former I. C. P. student, and Miss Carrie Tomlinson of this city, staged a very pleasant surprise for their friends recently, when they were quietly united in marriage at the home of the bride. While the students regret they could not witness the ceremony, they join in wishing the pair all happiness. They will make their home in De Kalb, Illinois.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

A Possible Static Reducer

As mentioned in a previous issue of this department, there are lots of things that we and everyone else do not know about static. Among the few that we do know for certain, is the fact that static can usually be generated if sufficient friction is applied to the film. Unfortunately, we cannot demonstrate, in a practical way, the converse of this proposition; i. e., no friction, no static; as it is impossible to wind film at all without at least some friction. And sometimes it seems to require mighty little friction to generate a whole lot of static, especially under certain weather conditions. At any rate, it seems reasonable to suppose that since it can be generated by friction, static will be diminished as friction on the film is reduced. As for entirely eliminating static, it has not yet been done, and a fortune awaits the man who can achieve that result, absolutely. We, ourselves, pass.

But acting on the general principle of being willing to try anything once, we had two magazines equipped with brass-roller light traps instead of the usual velvet ones. This was done with the idea of reducing friction at the points where the film leaves the supply magazine and where it enters the take-up one. Were no other purpose achieved, the camera turns easier when using these roller light traps than when using the magazines with the usual Pathe velvet ones. But, as we have had an opportunity of using only about three thousand feet of film with the roller light traps, in direct comparison with velvet ones, we hesitate in commending their efficiency. It is possible that mere luck is responsible for the comparative freedom from static in the film made with roller light traps as against that made in the magazines with the usual velvet ones. While not conclusive, the results seem encouraging, and for the information of others who may care to try out the idea, the illustrations herewith should be sufficient for such as are equipped to do the little mechanical work involved. The roller light traps shown were made by W. S. Ball, Marwedel Building, San Francisco.

Figure I shows the outside vents of two Pathe, studio model, magazines, the one on the left as originally fitted and the other with velvet removed. Although it is advisable to polish the metal slot through which the film goes to the sprocket, this is hardly necessary if the rollers in the light trap are so placed that they permit the film to pass through in a straight line without touching the sides.

Figure II shows, on the left, film in place in old magazine, the velvet of the light trap extending along bottom and upward from the roller. On the right is shown the modified one with its movable roller in operating position; bearing, by spring tension, against the two fixed rollers between which the film passes.

Figure III shows the movable roller drawn back from the other two to permit of inserting the film. These two fixed rollers are located in a metal box, their surfaces revolve about an eighth of an inch apart. This metal box encloses the rollers closely but not tightly, in order that all light may be excluded from the magazine.

Figure IV shows the movable roller held back by thumb of left hand while film is inserted between the other two with the right. A small curved finger, located back of the fixed rollers, prevents end of film going up and back of upper roller.

Simultaneous Focus and Finder Adjustment

In describing, in this department last October, an adjustable finder attachment of our own devising, we suggested the possibility of some mechanical genius producing a device that would enable one to set his lens for the correct focus and his finder at the correct angle to axis of lens, at one operation. On a recently marketed, low-priced camera, this idea has been carried out by means of a single lever with a pointer to footage scale at one end, an inclined slot operating a hinged finder at the other end, and a ring fitting around the focussing tube of the lens near the middle of the lever. The mechanism is beautifully simple and should be readily adaptable to higher priced cameras. It would be ideal when quick set-ups are necessary and especially useful to news weekly men.

Pleasing Diffusion In Enlarging

Not a few of our readers will be pleased to learn that the makers of the Verito lens are now supplying a set of diffusing stops to be used in making enlargements with this lens. Heretofore, in making enlargements possessing the most pleasing degree of diffusion, it was necessary to make a series of exposures at different apertures, making it rather impractical to estimate and give exactly the complete amount of exposure necessary for the enlargement. These new Wollensak diffusing stops for the Verito lens eliminate this difficulty. By using one or the other of these stops, an enlargement is obtained having a rare quality of diffusion, one obtainable by no other method now being employed. The set is composed of three stops, each giving a different degree of diffusion, permitting the operator to secure the result best suiting his fancy. The price of the set which includes adapting to the barrel of a new Verito or of one already in use, is seven dollars and a half. The Wollensak Optical Company will be glad to send special literature concerning these stops and their use upon request.

Artatone For Artistic Effects

We have just received from the distributors, the International Photo Sales Corporation, 7 East Fortieth Street New York, a handsome, eight page circular giving full instructions for the simple manipulation of this excellent paper. Artatone is a thin, semi-transparent, hand-made paper, manufactured from the fibre of a Japanese plant having long silky texture that is exceedingly tough and resistent to tearing or other strain. Contact prints or enlargements made on this paper have a rich brilliancy that gives the effect of an etching rather than a photograph. The paper is furnished in a slow grade, suitable for contact printing, and a fast grade that can be used for enlarging as well. The latter is generally recommended, but the former gives more contrast and is better suited for soft or flat negatives. Previously the efforts of the distributors were confined to the making of prints and enlargements on this paper for the photographers, but recently the facilities for the manufacture of the paper have been perfected and enlarged so that the sale of the paper directly to the photographer is made possible. We would advise all our readers to give this excellent printing medium a trial as so doing will give them an opportunity of producing most artistic results from their negatives, results that are pleasing in the extreme.

Notes From the Illinois College of Photography

Professor A. G. Penrod of the Negative Making Department, has resigned his position in the College to accept one with the Government, at Newport, Rhode Island. His new superiors are to be congratulated on securing such a valuable assistant.

During the month of February, the Fife Brothers Evangelistic Company held a series of meetings in Effingham. All of the party are musicians, and shortly after their arrival in the city, entertained the students in Garnet Hall, with several lyceum numbers. The treat was enjoyed by all, and in appreciation of it, the student body attended the service, in a delegation, the following evening, taking with them their yells and enthusiasm.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Those Rejected Pictures

When a worker submits one or more pictures to an exhibition hanging committee he does so with at least some little hope of acceptance. When rejection results, or even when those accepted are not the ones he thought his best, he is desirous of knowing just wherein his skill and judgment is at fault. I imagine he really feels quite deeply interested in the question. But there is no answer and apparently no way of getting one that will be helpful and enlightening. And why need this be so? We are constantly told that we should submit work to the salons and exhibitions in order to measure up our own productions with what is being done by others, but where does the measuring up come in? Was our pet picture a better conception than half of those accepted but disqualified only on account of something wrong in the treatment, or was it just the other way around? How are we to know in just what respect our work is lacking? How are we to set about improving our work, of bringing it up to exhibition standards? Are our subjects too hackneyed? Is our treatment lacking in feeling? Is our technique at fault?

Would it not be a good idea for some club or society to announce an exhibition and solicit pictures therefor with the distinct understanding that the jury of selection explain clearly and concisely just why each and every rejected picture was not accepted? Not every jury, as now appointed, would care to do this, but it would not be difficult to select one made up of capable men willing to give their reasons for the non-acceptance of the rejected pictures. The criticisms could be brief in the extreme and the presence of a short-hand reporter would expedite the work. It would not even be necessary for each member of the jury to go on record with his individual views concerning each picture. One of the number could dictate the criticisms to the reporter while the others might occasionally, as they saw fit, add to or qualify by their own remarks. The criticism, of course, would be numbered to agree with the numbers given them as they were set up before the jury and the committee packing the pictures for return could see that the criticisms, properly numbered, went to the makers of the pictures bearing like figures. Even were it found necessary to charge a small fee to defray the expense of such work, I believe a large number of those submitting pictures would willingly pay the required amount. I appreciate the fact that a jury of award might have some delicacy in giving reasons for its decisions, but the jury of selection should find little or no difficulty in pointing out the faults responsible for the rejection of any picture so treated. And the helpfulness of such criticism, particularly to the worker who is striving to reach the exhibition or salon standard, is quite evident. True, in the case of a popular salon, the large number of pictures submitted might make it impractical to consider all the rejected ones. In such a case the jury might criticize only those showing some real merit. I believe it is the general practice for the jury of selection to first assort the pictures into three groups, namely, those that at once appeal, those worthy of a second consideration, and those that quite obviously lack pictorial merit. The pictures in the second group are then considered; and, after the ones then accepted have been removed, the remainder, consisting of perhaps from two to five hundred, might be given criticism at a brief session that should require not more than an hour for each hundred so considered.

Defective Bromide Enlargements

An Illinois correspondent writes to say that all his bromide enlargements are of poor quality, seem to be flat and lacking in contrast. He wants to know how he can determine where the fault lies. He suspects the paper but explains that the light in which he works may be unsafe or the enlarger may

be of such construction that it fogs the paper. He should take a small piece of the paper and make a contact print, preferably using another developer and another darkroom light. If this comes up clear and with sufficient contrast he is assured that the paper is all right. Then pin up another small piece of paper and work as if making an enlargement in the usual way, except that a part of the paper is protected by a strip of black paper which is removed as the print goes into the developer. If this protected area remains white in the developer, both the light used and the developing solution are all right and the enlarger is at fault. If the strip fogs over during development of the print, the developer or the light used is wrong. Exposing another small piece and developing it in the dark or nearly so will determine this last. If the fogged and flat result maintains, the fault lies in the developer.

The Effect of Dampness

A local reader came in to ask us if we were quite sure as to our statement in this department recently concerning the lack of response of a silver emulsion to low temperature in the matter of decreased sensitiveness. While we made no dogmatic statement as to the matter, we quoted an authority to show that even excessively low temperature had no appreciable result. Our English contemporary, *Photography,* comes forward in a recent issue and cites the *Astrophysical Journal* as saying that there is a decided loss of sensitiveness in a plate that has been exposed for some time, due to absorbed moisture, in the making of celestial photographs. This, as the editor points out, is quite understandable, gelatine being a hydroscopic body having the property of absorbing moisture to no small degree. This may explain how the idea has grown that cold resulted in a slowing of the plate. While cold air is not always damp, warm weather is generally associated with a dry atmosphere, and this fact, in connection with the decreased activity of the chemicals used in the developing solutions, would justify the average worker in the belief that the cold of winter made his plates and films less sensitive to light action. Here on the Pacific coast there is little or no very cold weather, but our winters, our rainy seasons, are invariably damp. Our visitor had noticed that, with same light conditions, longer exposures were required and is now fairly well satisfied that his belief concerning a difference in sensitiveness was justified by a difference in the amount of moisture the emulsion may have taken up, rather than by a difference in the temperature.

Looking Pleasant In a Portrait

The beginner, when he comes to making a portrait, as he always does, as well as some more experienced workers, seems imbued with the idea that a "pleasant" expression is absolutely necessary and that the proper way to call it forth is to request it of the sitter. This no doubt results from the generally accepted belief that the professional portrait man always says: "Look pleasant, please", just before he presses the bulb. The truth of the matter is that very few of the professional portrait photographers use this phrase; at least, very few of the better ones. They realize that a smile forced up to decorate an expression that cannot help but reflect any uneasiness or constraint that the sitter may feel, is about as inappropriate as would be the indulging in a dish of ice cream by a toothache sufferer. We have all seen the ill success of an embarrassed child's attempt to conceal its difficulty by a smile, and we should realize that the made-to-order photographic article is hardly more convincing. Of course, I do not advise the portrayal of a weary, uneasy or other undesirable expression, but I would point out that these expressions still maintain, regardless of the sitter's efforts to ornament his face with something more pleasing, just as long as the mind itself is not in a pleasant and agreeable state. And this gives our answer. A pleasant expression, if it is not to appear false, must reflect the mental state of the subject. If one cannot get his sitter into a pleasant frame of mind he can at least make some effort to avoid bringing on an unpleasant one by displaying, as little as possible, his own nervousness and lack of experience. He should have everything as near ready as possible before asking the subject to take his seat before the camera and then go through with the work in as expeditious and matter-of-fact manner as he can. A few words of conversation will help, of course, but forced conversation defeats its ends in the same way as does the forced smile we have cautioned against.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

NEW MEMBERS.

4323—L. B. Flanders, Longmont, Colo.
5x7 and 4¼x6½, developing papers, of mountains, lakes, Rocky Mountains and National Park; for typical scenes, mountains, scenery, etc. Class 1.

4324—Captain L. S. Ryan, Fort Winfield Scott, San Francisco, Cal.
Class 3.

4325—Lizzie G. Knauf, R. F. D. No. 1, Seaman, Ohio.
3¼x5½, 4x5 and smaller, various papers, of snow scenes, old houses, landscapes, streams of water, forest scenes, and general subjects; for any thing of general interest.
Class 1.

4326—Harry W. Lansom, 93 Franklin St., Boston, Mass.
1⅝x2½, 3¼x5½, 5x7 and 6½x8½, various papers, of views, snow scenes, etc., animals and nature pictures, no persons; for the same. Class 1.

4327—Masataka Harada, No. 84, Otsuka-Saka-Shita-cho, Koishikawa, Tokyo, Japan.
4½x6, 6x9, 9x12 and 13x18, various papers, of landscapes, marines, interesting ceremonials and events, animals and birds, mountain scenery, aboriginals and miscellaneous scenes; for landscapes, marines, old ruins, mountain scenery, aboriginals, historical and miscellaneous scenes. Class 1.

4328—Herbert R. Wiswell, Westbrook, Minn.
3¼x5½ and enlargements, developing papers, of landscapes and general views; for landscapes, mountain views, flower studies and birds. Foreign exchange desired. Class 1.

4329—Samuel O. Miner, P. O. Box 123, Houghton, N. Y.
2¼x3¼, developing papers of Portage falls, etc., scenery, college sports and snapshots; for any thing of general interest, especially scenery and historical places. Class 1.

4330—O. L. Wahgren, R. F. D. No. 9, Box 36, Fergus Falls, Minn.
3¼x5½, developing papers, of Minnesota scenery, winter scenes, comic and goose photos; for marine, tropical, National Park, historical and other pretty scenes. Prints and post cards. Class 1.

4331—H. D. Wilson, P. O. Box 8, Phoenix, Ariz.
5x7, developing papers, of general and mountain scenery, also nude studies; for scenes out of ordinary, mountains, child study and nude art. Class 1.

4332—Russell R. Hassan, Dundas, Minn.
3¼x5½ and 5x7, developing paper, of landscapes and local views; for views of battleships, soldiers, Mexican pictures, etc., any size.
Class 1.

4333—Juventino Ocampo, P. O. Box 167, Pachuca, Hgo., Mexico.
3¼x5½, developing paper, of landscapes, animals, birds, mountain scenery, typical scenes and others; for wild animals, birds, landscapes, marines and portraits of girls.
Class 1.

4334—Matthew Green, 329 Muscadene St., Greenville, Miss.
Class 3.

4335—T. Harmin Parkhurst, Box 282, Santa Fe, New Mex.
Class 3.

4336—Al Oberlin, P. O. Box 451, Emmett, Idaho.
Class 2.

4337—Miss Marie Queen, Box 428, Portsmouth, Ohio.
3¼x5½ to 8x10, developing papers, of figure studies, draped and nude; for the same.
Class 1.

4338—W. A. Drewelow, Box 23, Wesley, Iowa.
4x5 and post card size, various papers, of landscapes, general scenes, genre, comic and street scenes, also mountain views; for landscapes, still life, genre, comic and mountain scenes. Unmounted prints. Class 1.

4339—Hayden B. Brutaker, 730 Penn Ave., West Reading, Pa.
2¼x3¼, 3¼x5½ and 5x7, developing paper, of views of trips, and home life; for anything of general interest. Class 1.

4340—L. Dillingham, Hdqrs. Phil. Dept., Manila, Phil. Is.
3¼x5½, developing papers, of old churches, ruins and views of Philippine Islands; for old churches and ruins of world, but particularly European war ruins. Prints only.
Class 1.

4341—N. E. Harrison, Cable Station, Guam, Guam. Class 2.

4342—H. S. Albertson, R. F. D. No. 1, Box 43, Omak, Wash.
3¼x5½, 5x7 and 6½x8½, various papers, of mountains, lakes, and general views of Okawagan Project; for mountains, lakes, and farming country. Post cards only. Class 1.

4343—S. H. Shelstad, Brandt, So. Dak.
2½x4¼ and 3¼x5½, developing paper, of views, portraits, groups and general line; for views and general post cards; post cards and prints 2½x4½. Class 1.

4344—H. O. Woodard, Erie County Telephone Co., Waterford, Pa.
Want any size up to 5x7, figure studies, draped and nude figures, outdoor child views, bathing scenes, rural and small town views.
Class 1.

RENEWALS.

3820—W. S. Cotton, care The Home Tel. & Tel. Co., Park and Burnside Sts., Portland, Or.

Unmounted stereo prints. Class 1.

3852—J. W. Jeffers, McClure Bldg., Frankfort, Ky.
3¼x5½ to 5x7, developing paper, of landscapes, genre, a few nude and local scenery; for landscapes, genre, nude of children only, and foreign. Class 1.

3982—C. C. Hollenback, 3134 N. High St., Columbus, Ohio.
Slides and stereos, of Panama Pacific International Exposition, and Yosemite Valley; for historical, Mexican, South American and European War. I desire to exchange only lantern slides after correspondence. Class 1.

4043—C. H. Helmbrecht, R. F. D. No. 2, Box 63, Turtle Lake, No. Dak.
Class 2.

4047—Ralph V. Tuttle, R. F. D. No. 2, Pomeroy, Wash.
5x7, various papers, of Canyon, farm, Columbia River and a few flower studies; for flower studies, wild animals, landscapes of interest, and figure studies. Class 1.

4132—C. S. Carlsmith, Hilo, Hawaii, T. H.
Prints up to 5x7, of Hawaiian scenery, volcano pictures, native and Oriental types; for landscapes and seascapes, types, genre and anything of real pictorial value. Class 1.

4193—Capt. Wm. H. Smith, 2705 Kentucky Ave., El Paso, Texas.
3¼x5½ and 5x7, of typical Mexican views, Texas missions, and city views; for historical, unique and interesting views on single weight paper only; no post cards exchanged. First class given and accepted only.
Class 1.

CHANGES OF ADDRESS.

4212—T. C. Jackson, R. F. D. No. 1, Corvallis, Or. (Was Siletz, Or.)

4311X—P. C. Anderson, R. F. D. Box 32, Joice, Iowa.
(Published in March issue erroneously as Idaho.)

OUR BOOK SHELVES

"The Art of Looking At Pictures"

If you appreciate the fact that like books, heretofore available to the individual looking for enlightenment, were seemingly written for the benefit of those already somewhat enlightened, you will be glad to learn that in "The Art of Looking at Pictures," a departure has been made. The author, Carl H. P. Thurston, gives us the direct result of his own efforts to find beauty in the crudeness that he all too plainly saw in the Old Masters. He has given us an eminently practical book, one that shows us how we, any of us, can see with understanding; how we can study any picture, what to look for and where to look for it in either the original or in a reproduction. One hundred and twenty artists and their work are considered, biographical notes, pronunciation of names, an index, an important chronological chart, thirty-two illustrations and other features add to the interest of the three hundred pages. 12mo, semi-flexible cloth binding, one dollar and fifty cents net. Dodd, Mead & Company, New York.

"Home Labor-Saving Devices"

Rhea Clark Scott has given us, in a profusely illustrated book bearing the above title, clear instructions for the home construction of numerous conveniences that will clear away much of the drudgery that housekeeping, homekeeping, is too often allowed to involve. The author is particularly well qualified, not only to advise, but to select the topics best calculated to interest the largest number of readers. The articles described require neither elaborate skill or equipment, and the material called for is either inexpensive or easily obtainable. To increase leisure by lightening labor is the aim of this work, an aim that is certainly achieved in a most able and direct manner. Published by J. B. Lippincott Company, Philadelphia. Price one dollar, net.

"British Journal Almanac, 1917"

Even later than last year, this well known annual comes to hand with its wealth of photographic information. It is so well known that a description is not necessary further than to say that it follows the general plan of the last or 1916 issue and as most dealers carry copies in stock and as it is rapidly sold out, the intended purchaser should not delay in securing a copy. George Murphy, Incorporated, 59 East Ninth Street, New York, are the American sales agents. The price is fifty cents and one dollar for the paper and cloth covered editions, respectively. Postage is extra according to zones.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Blue Tone For Night Effects

At the February first meeting of the Southern California Camera Club, Lyceum Building, Los Angeles, the matter of holding a salon was again discussed and a special committee was appointed to work in conjunction with the regular print committee in arranging details. The chairman was instructed to notify photographic publications of the dates decided upon and to send entry forms to those who might be interested in submitting pictures. These blanks can be obtained upon application to Miss O. P. Close, Secretary, 313 West Third Street, Los Angeles, California. Mrs. Dodds kindly explained, for the benefit of her fellow members, the method by which she obtained the pleasing effects shown in the night pictures submitted by her in the current monthly competition for club members. The suggestion of color was obtained by iron toning the bromide enlargements; this, Mrs. Dodds explained, producing the cold blue and blue-green effects suggestive of night. In addition the buff tinted stock on which the prints were made gave a touch of warmth suggestive of the artificial lights shown in the pictures.

Stereoscopic Effects

Mr. Thos. B. Lambert's talk on stereoscopic photography before the Chicago Camera Club at the first meeting in March proved to be full of contagious enthusiasm and novel conceptions. Mr. Lambert made many demonstrations of how drawings and sketches could show decided stereoscopic quality and yet only be optical illusions. Stereoscopic motion pictures, the dream of many, have, according to the speaker, resulted in many curious inventions. One inventor having patented a lorgnette working in synchronism with the projecting machine and shading the right and the left eyes alternatingly so that the spectator might only see the screen with one eye at a time. The pictures are taken with a special camera taking the pictures alternately for each eye. The "one man a week" exhibitions started last month were continued this week by Paul Wierum, F. M. Tuckerman, B. J. Morris, and E. E. Gray. A print discussion was held at the second meeting, and at the third, lantern slides were submitted. No regular meeting was held on March twenty-eighth as the members attended the Eastman Professional School in session that evening.

The Bangor Society of Art

This society, formerly, The Fotocraft, will hold its annual exhibition in the Fine Arts Gallery of the Bangor Public Library, May seventh to nineteenth, inclusive, the exhibition to consist of original works in Photography, Painting and Arts and Crafts. All entries should be sent to Miss Alice G. Welch, Secretary, 125 Essex Street, Bangor, Maine, not later than April twenty-third. Pictures may be framed or unframed and in addition to being plainly marked on the back, a list should be sent separately to the secretary to minimize the danger of mistakes. All work entered will be submitted to the jury and pictures from out-of-town exhibitors will be returned promptly at the close of the exhibition. Where time permits, intended exhibitors can obtain entrance slips by address Miss Welch as above, but these are not necessary if the suggestions made above are heeded.

Wanamaker's Twelfth Annual Exhibition

We have just received a list of the prize awards made at this exhibition, this coming in the form of a neat little booklet that also contains ten excellent reproductions of prize-winning pictures. Of the eighteen cash prizes awarded, five went to California Workers; and, of the thirty-seven "mentioned for merit," fourteen are credited to Californians. This is an excellent showing and judging from the pictures reproduced, the character of the exhibition was such that it must rank

very favorably with the leading photographic salons. Not only this, but as over eleven hundred pictures were submitted, the work of two hundred and fifty photographers, the winning of a prize or mentioned for merit is no small honor, particularly as the judging was in the hands of such men as Steichen, Stieglitz and others of like capability. Copies of this little booklet can be obtained upon request made to Camera Store, John Wanamaker, Philadelphia.

Tone Value In Snow Pictures

At the business meeting of the Southern California Camera Club of Los Angeles, held Thursday evening, January fourth, the election of officers resulted as follows: T. K. Adlard was re-elected president; Fred Archer, vice-president; Miss O. P. Close, secretary; Frank C. Elliott, treasurer; W. C. Sawyer, librarian, and Frank Shirley, historian. Mr. Crandall agreed to give the club another of his popular autochrome exhibitions at the following meeting. The subject of a salon was brought up, discussed and referred to a committee for future consideration. Fred Archer gave a talk on snow pictures, illustrated with a number of striking examples which he had made at Mount San Antonio, "Old Baldy". Mr. Archer explained that the correct rendition of tone in both snow and shadow, together with good detail in foliage, was obtained by the use of double coated plates in connection with an autochrome ray filter, giving rather liberal exposure and taking great care not to force development. This procedure, he explained, produces soft, quick printing negatives that are without undue contrast. His results certainly seemed to justify his commendation of this method of working.

Chicago Camera Club Visitors

Two visitors from the west to Chicago in March were F. P. Clatworthy of Estes Park, Colorado, and Samuel Christopher Lancaster, of Portland, Oregon. Mr. Clatworthy, with his 5x7 autochromes and a special lantern, delivered successive knockouts to the Prairie Club and the Union League Club of Chicago, the University Club of Evanston, and other suburban audiences. Autochromes were used exclusively by Mr. Clatworthy and he brought the natural colors of Rocky Mountain Park scenery, in all its splendor, to Chicago. Mr. Lancaster spoke to two audiences of the Chicago Geographic Society the afternoon and evening of March ninth, taking for his topic "The Scenic Beauty of Oregon". The lecture was illustrated with Paget color plates and motion pictures. State Biologist, William L. Finley of Portland, Oregon, delivered a lecture before the Illinois Audubon Society, Saturday, March third, on "Nature's Children in Motion Pictures".

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

C. S. Nordell of the Arthur Spaulding Company was married in San Francisco during the recent Auto Show week.

Don M. Harris, the tall boy who sells Housh albums was seen recently on Broadway—Los Angeles. He had (Bean) to Boston, at the factory.

The writer found a crowd gathered in front of the Bullock store show windows in Los Angeles. When he could edge in near enough to see what created the disturbance he found H. E. Burns, manager of kodak department had on display some of Ernest Williams' colored pictures.

C. W. Quatermas of Marshfield, Oregon, is touring California in his car. The writer met him in Fresno.

Hartsook's new studio in Fresno is a credit to that enterprising town.

Reynold's Photo Shop, Fresno, reports heavy business in amateur finishing.

H. W. Blanchard is doing the Bay towns for Hirsch & Kaiser.

Bert Blaising and wife were in San Francisco during March. They come West every year from Denver, where Mr. Blaising owns several studios.

Premo Richardson is making his spring trip along the Coast.

Fred Seyler the Taprell Loomis mount order getter, reports conditions on the Coast as being even better than ever.

Charles Boussum is adding San Jose to his chain of studio towns.

Happy McLaughlin and his boss are working hand in hand. Ideal Albums comprise their line.

Garo Adopts The Northern Light

Not a few of our readers, already interested in the Northern Light manufactured by the Simplex Photo Products Company of Richmond Hill, Long Island, New York, will be made still further so by learning that Mr. Garo has installed it in his studio at

MOTHER AND CHILD By GARO

Boston. Mr. Garo expresses himself as being highly pleased with the results secured with this excellent light, and delighted with the wonderful similarity the light has to daylight. The Northern Light is now being used daily in his studio and we are reproducing herewith two or three typical Garo portraits, given one-half second exposure with this light as the sole illuminant. Mr. Garo's standing in the photographic profession is such as to make any of his portraits interesting as studies. The accompanying illustration, "Mother and Child", does not do justice to the original which is a beautiful specimen of the highest type of photographic portraiture. Other portraits also made with the Northern Light, by Henry Havelock Pierce of New York and Boston, Edward D. Waters of Chicago, and other prominent photographers are alike of the

THE CHILD By GARO

highest quality. The Simplex Photo Products Company has been fortunate in securing the original negatives of these and other portraits made with their Northern Light by photographers whose names are familiar to the fraternity from coast to coast. These have been made into beautiful portfolios of original 8x10 photographs; and, while it is impossible to distribute them promiscuously, they will be mailed to any adddess for twenty-five cents in stamps to partly cover

A PORTRAIT By GARO

its cost. Not a few of our readers will be glad to avail themselves of this opportunity of securing these specimens of original portraits made by professionals whose work represents the best photography, particularly

when these portraits also prove the wonderful capabilities of the Northern Light for high class portraiture in its close approach to daylight. A new catalogue, describing the light in full and containing a large number of reproductions of specimens of the best work in portraiture made with the light, will be mailed upon request and we would advise our readers to send for a copy today.

The F. & S. Finger Print Camera

There has just reached our desk a handsome little booklet describing the new Folmer & Schwing Finger Print camera, a booklet of considerable interest, particularly as it explains quite clearly how much more satisfactory, if not absolutely essential, is a special camera for work such as this new camera is intended to do. The camera is, of course, one that does not appeal to the general photographer but to the one who is called upon to do work within its scope it would seem practically a necessity if the best work is to be turned out. Copies of this booklet can be obtained from most dealers or by writing directly to Folmer & Schwing Division, 12-14 Caledonia Avenue, Rochester, New York.

The "Paco" Dryer

On another page will be found the advertisement of this very simple dryer; and, as the manufacturers have already placed several of them to the utmost satisfaction of purchasers who bought only after investigating other dryers, a few words concerning it may be of interest. This dryer uses only one apron, and the trouble of prints coming on seams, or of the apron running off at either side, is entirely done away with. The heat can be regulated to any desired degree and the machine will dry the prints as fast as an experienced girl can lay them on the apron. The cut used in the advertisement shows its simplicity of construction, a feature which present users claim makes it absolutely fool proof and dependable in every way. Those interested in a dryer that will fulfill the most exacting requirements should investigate the merits of this one, the outcome of practical experience and use extending over a number of years. Inquiries addressed to the manufacturers, the Photographic Appliances Corporation, 116 South Fourth Street, Minneapolis, Minnesota, will receive prompt attention.

David Stern's Company's New Catalogue

The new 1917 catalogue issued by David Stern Company, 1047C West Madison Street, Chicago, Illinois, is about the most complete bargain list covering everything in photography that we have seen. The motion picture section, an innovation in camera catalogues, is interesting and the guarantee that goes with every item, giving ten days' trial or money back without equivocation, should inspire the confidence of intended buyers. The catalogue is a most interesting one and the hundreds of bargains in used and second-hand cameras, lenses and the like should appeal to those desirous of saving money on their photographic purchases. Copies of this catalogue will be gladly mailed upon request.

New Cirkut Catalogue

We have just received one of the new Cirkut catalogues issued by the Folmer & Schwing Division, 12-14 Caledonia Avenue, Rochester, New York. Those interested in the money making possibilities of the Cirkut camera should send for a copy of this catalogue, as it is a handsome one that is brimful of information and illustrations that are most instructive. Practically every up-to-date commercial photographer in the country is equipped with one or more of these cameras and finds them indispensable as well as profitable adjuncts to their business. Copies of this catalogue can be secured gratis by addressing the manufacturers as above.

Illinois College of Photography

Two interesting talks were made before the Assembly the past month, one by Harry Lietzell, a former I. C. P. student, and the other by C .L. Weed, a representative of Smith, Butterfield Company.

The students of the Illinois College of Photography are taking an interest in the work of the Photographers' Association of America. Within the last few weeks, the names of twenty-six desiring admittance, as members, were sent to Secretary Hoffman.

We learn through the society columns of an Austin, Texas, newspaper, that Felix A. Raymer, formerly a member of our Faculty and now engaged in the photographic profession in Austin, together with his partner Mr. Jensen, recently gave a reception to the members of the Texas House of Representatives and Senate, and their families.

XIV No. 5 MAY, 1917 Price, 10 Cents

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A Photographic Monthly

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A RAINY NIGHT IN NEW YORK
By EDWARD LAROCQUE TINKER

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

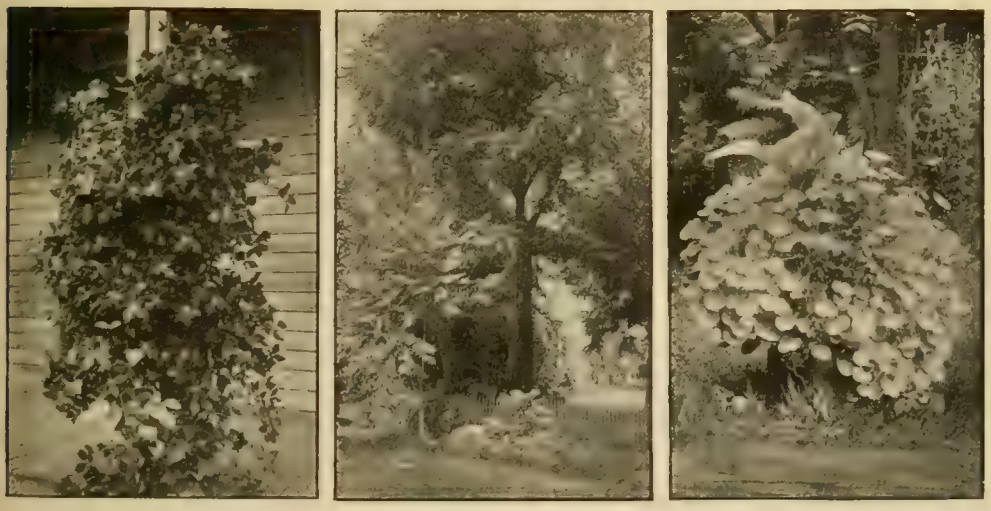
VOL. XXIV MAY, 1917 No. 5

The Flowers About The Home

By John Bieseman

With Illustrations by the Author

The flowers about the home, those of the door-yard and garden, when arrayed in their summer splendor, have an appeal, a fascination, for those of us who use a camera. But to achieve success, even in the small measure that lack of color permits, a few precautions should be observed. It is useless to attempt to photograph our floral friends in the sunshine and expect good detail and harmony



LEFT: CLEMATIS JACMANI—6:15 P. M. (sun down), f-16, Ortho plate, 3× filter, 5 sec. exposure. CENTER: A COUNTRY RESIDENCE—11 A. M., f-11, Double Coated Ortho plate, 3× filter, 1/5 sec. exposure. RIGHT: NASTURTIUMS AND CANNA—5:30 P. M., cloudy, f-22, Ortho plate, 3× filter, 2 sec. exposure.

in the tone gradations. The results would be disappointing, shadows would be devoid of detail, and texture would be entirely absent in those parts exposed to the bright, glaring light. One should select, instead, an hour in the early morning, or late afternoon, when no part of the subject is too strongly lighted; but even then the depth of the shadows is not diminished. The most suitable, because most uniform, lighting for such subjects is secured when the sun is somewhat veiled by a cloud or clouds; but, of course, this condition is not always present. Such light is diffused in quality because the sky itself becomes a source of illumination, through reflecting the sunlight that reaches it despite the fact that direct rays are cut off by the clouds. Such a light acts very evenly, penetrating the shadows better while at the same time illuminating more softly the outward or well lighted parts.

If one will investigate this matter of using the light reflected from another quarter of the sky when the direct rays of the sun are cut off by a small bank of clouds, he will find that a time of day can be chosen when the principal light falls at such an angle, preferably one of about forty-five degrees, that the subject will present the best pictorial effect. A slow plate should be used if the air is calm and quiet, as the quality of the resultant negative will be much better than it would were a fast plate employed. Whenever possible, a double-coated orthochromatic plate should be used in connection with a "three time" ray filter.

The home itself is usually best photographed from a point showing the entire front and some part of one side, and the composition so arranged as to include a sufficient foreground and some little sky above. Such trees and shrubbery as one may wish to include, or exclude should also be given attention. Having by a preliminary survey decided upon what is wanted in the picture, the camera, with the lens wide open is stationed at the proper distance to insure its inclusion. It is well at this point, to judge what exposure is required with the large stop, say U. S. 4 or f-8, and then double the time for each successive smaller stop as the diaphragm is reduced to obtain the desired depth of definition in the subject. In some cases, the exposure will have to be limited, somewhat, in order to avoid motion resulting from an unexpected breeze; or, perhaps figures must be included. In such cases a little less stopping down can be indulged in and, as a last resort, the service of the screen dispensed with. While the latter should be used whenever possible, a fully-timed plate without the screen will perhaps be better than an undertimed one made with it in position.

The plates recommended, the double-coated orthochromatics, should be developed in a tank; or, if by the tray method, the developer should be diluted by adding an equal amount of water. The developing time should also be doubled. In printing from these negatives it will found that either a soft or medium grade of paper will be most generally satisfactory. Occasionally it may be necessary to use the contrast grade; for example, when an orthochromatic plate has been just perceptibly fogged by an unsafe light in the darkroom.

One will sometimes find that a view point selected to include part of one side as well as the front of the dwelling, bring into the view objectionable objects or perhaps cuts off some desirable portion. In such cases a direct view of the front only may be the best that can be secured in the way of a composition. Often such a view is preferred or wanted, with the front alone as the main attraction. Per-

BED OF NICOTIANA—5 A. M., in shade, f-22, Double Coated Ortho plate, 3× filter, 1 min. exposure

haps the veranda is chosen in order to permit the portrayal of members of the family, either singly or in groups. The lighting for such pictures, if the proper time of day be chosen, is often of the best.

Coming to the flowers, a trailing vine, in full burst of blossoms, is a superb subject for the camera at almost any time. If it be a white clematis, such as the one shown herewith, the lighting cannot be too diffused. A rather clouded sun,

FALSE SOLOMON'S SEAL—8:20 A. M., in shade, f-22, Ortho plate, 3× filter, 4 sec. exposure

or the early morning and late afternoon hours, should be chosen for making the exposure. Should a crimson rambling rose be the subject, the lighting can be somewhat stronger, but not full sunlight. With these subjects particular attention should be given to see that they are in good focus on the screen, and the lens stopped down for fine definition. Growing plants, when in blossom, make good subjects for exposure. These having light-colored flowers are especially desirable as they contrast quite effectively against almost any kind of a background that may result from objects in the rear.

Red flowers require that the background be chosen with more care, one of the best being cheese-cloth stretched over a light frame work of slats. A simple sheet of cloth thrown over a horizontal wire or pole, is effective, and can be quickly arranged. Care should be taken that it is destitute of creases due to folding or to its not hanging straight, as such marks are objectionable in the finished print. Where the background is of sufficient size and room permits, it can be placed far enough back of the flowers to be out of focus and therefore be soft. Again, if suspended from a wire or string, an assistant can easily keep it in motion during the exposure and so prevent its texture being too sharply defined. A generous portion of the ground from which the plant, or clump of plants, makes its growth, should be included to serve as a base and show their natural symmetry of form, but this need necessitate only enough to balance the composition. Any fading or wilted floret or leaves should be carefully removed before the exposure is made, and frequently a stray branch or straggling branch can be cut away to advantage. These undesirable features will sometimes appear more prominently in the print than in the living plant as presented to the eye.

Individual trusses and clusters of florets make good subjects for recording on our plates. Choose such a cluster and then view it from different angles in order to determine the most desirable position, particularly in reference to the lighting. As a rule, the most prominent portions of the florets should be turned toward the source of light. The background for such subjects should be carefully selected; and, not needing to be large, sheets of cardboard, and even of paper, may be brought into use. As a fairly general rule, one should use a white background for reds and all deep shades of orange and blue, while a black or dark-slate colored ground is best suited to those that are either white or some light shade of blue, pink, or yellow. With these small subjects and the camera so close, one can readily manipulate the shutter with the right hand while holding the cardboard background in position with the left. Such a cardboard background can also be suspended from or leaned against an upright stake placed in the rear.

The camera should set up so as to be as nearly on a level with the subject as the tripod or other support will permit. Frequently a small box will be found a good substitute for the many-jointed part of your equipment. In making the exposure it is well to remember that the deep red flowers will bear a doubling of the exposure, and very dark crimson reds may be given three times the normal exposure. One need have no fear of over-exposing other parts of the subject, as these are mainly only the plain green stem and leaves that will not be affected. If the subject be an entire plant with a wealth of crimson flowers in evidence, there is nothing to be done except to use a panchromatic plate. Even

LEFT: CANNA FEURMEER—3 P. M., cloudy, f-16, 6 sec. exposure. CENTER: CANNA GLADIO-FLORA, 9:20 A. M., cloudy, f-22, 20 sec. exposure. RIGHT: CANNA FIRE BIRD, 4:25 P. M., in shade, f-16, 30 sec. exposure. Double Coated Ortho plate and three times filter used in each case

then, the subject, rendered in monochrome, is hardly satisfactory and this points out the fact that light colored flowers are the best for our purpose. With them, the contrast presented to the eye is possible of pleasing portrayal without the aid of color.

About The Small Camera

"A Dollar's Worth of Advice"

With Illustrations by the Author

EDITOR'S NOTE: *Knowing of Mr. Rice's extensive correspondence with amateurs seeking advice on photographic topics, and believing that much of the counsel given in individual cases would be of interest and benefit to many of our readers, I have asked him to furnish, for our columns, from time to time, selected portions of such correspondence. The first installment is here given.*

The following is the text of a letter in reply to the inquiries of a man who has never possessed a camera, but who has about decided to purchase a small pocket camera with anastigmat lens. He has acquired much data on various models from the manufacturers' catalogues, and before making a final choice he seeks advice on different points.

"DEAR SIR:

"Your letter, with one dollar fee enclosed, received. Thank you. I believe I shall be able to give you some helpful suggestions, especially on the subject of pocket cameras, for pocket camera work is one branch of photography in which I have specialized.

"You are somewhat undecided between a 1¾x2½ camera and one of 2¼x3¼ size. You favor the smaller equipment for reasons of convenience, light weight, etc., but you are doubtful if the smaller negatives will yield as good enlargements to postcard size, or possibly 5x7, as could be obtained from the large size. There should be no difficulty in enlarging at least to 5x7 from a 1¾x2½ negative made with an anastigmat lens carefully focused, securing excellent quality in such enlargement. As far as fineness of detail and general appearance of the enlargement is concerned, there should be no appreciable difference between it and one of the same size made from a 2¼x3¼ negative of the same subject. The choice between cameras of these two sizes should be decided by other considerations than the quality of results.

"You ask me if film pack is more convenient than plates, and if with film pack it is possible to focus on the ground glass between exposures. The film pack is decidedly more convenient to handle than plates, up to the process of development. From that point to the time the negatives are washed and dried, plates are a great deal more convenient to manipulate than the film pack. In very small sizes, roll film is, on the whole, much more convenient than either plates or film pack. Ability to focus on the ground glass between exposures is one of the strong points of the film pack. But in the very small sizes this has always seemed to me to be merely a 'talking' point, and of no great real advantage; for in practical work with a vest pocket camera you will find it more convenient and just as certain to depend on the finder and focusing scale as it is to use the ground glass for focusing.

THE TOM PAINE HOUSE—Cramer Panchromatic plate, Dagor lens, deep yellow filter, f-6.8 stop, one-fifth second exposure. Golden glow in foreground

SMILING MEADOWS—Orthonon plate, Dagor lens, light yellow filter, f-6.8 stop, one-half second exposure

" 'Is the use of the rear lens alone as a longer focus lens an advantage worth considering?'

"No, not in the case of a pocket camera, where practically all your prints are enlargements. If you were going to buy a larger camera, say postcard size of 5x7, and intended to produce mainly contact prints from your negatives, then I should say the ability to use the rear lens alone would often be a real advantage; but where the enlarger will be a part of your regular equipment, you would seldom have occasion to use a longer focus lens. The same result, or better, could be secured by a greater degree of enlargement in making the print, using a correspondingly smaller part of the negative.

"As to choice of enlarging apparatus, that will depend a good deal on how you are situated. If you can devote time during daylight hours to this part of the work, and can appropriate an entire room to your exclusive use during that time, I should strongly recommend that you rig up a daylight enlarger, using your camera as a part of the apparatus. This will be inexpensive and require no great mechanical skill. You will find easily understood directions in any one of several booklets on the subject that your dealer can supply.

"If you have to do your enlarging at night, you must necessarily depend on artificial light; and you will have to get an enlarging lantern of some sort. There are several good ones on the market. Electricity is better than gas. As between the electric arc lamp and the gas filled nitro bulb, I should choose the latter. I have used both. The arc gives a stronger light than the nitro bulb of five hundred watts or less but the light of the arc is not so steady and uniform. The great

BROWN OCTOBER—Orthonon plate, Dagor lens, light yellow filter, f-6.8 stop, one-fifth second exposure

heat generated by the arc is also a disadvantage, especially when films are used, and the carbons need frequent adjustment.

"And now that I have endeavored to answer all your inquiries, I am going to advise you not to buy any of the equipment we have been discussing, at least, not at first. You have never possessed a camera, and none of the cameras you have asked me about is quite what I should recommend for a beginner. You will do better work and be better satisfied in the end, I am confident, if you make your start with a simple inexpensive outfit. You favor a small camera. Very well. Get a fixed focus, roll-film, vest pocket camera; and if you do not object to a few dollars' increase in price, get one equipped with an anastigmat lens. To use with it get a fixed focus, box form enlarger. Carefully read the instructions that come with the outfit, and then 'go to it!' If you should feel the need of advice before you are satisfied that you have mastered this simple equipment, and it is quite possible that you may, I am at your service. Then, when you are ready for a more capable camera; or if, after all, you should decide to begin with the more elaborate apparatus, I believe you can safely rely on what I have said in the first part of this letter. (Signed) "Charles F. Rice.
"Mamaroneck, N. Y., April 2, 1917."

To get at the spirit, the pervading influence, the expression of a subject, and at the same time to show frankly and to the best advantage the medium employed, so that the appeal may be ingratiating in its manner as well as impressive in its matter, is a primary object of pictorial art.—Antony Guest.

An Artist With The Camera

By N. A. Wog

With Illustrations by Emma B. Freeman

EMMA B. FREEMAN

I have before me a letter from ye editor of CAMERA CRAFT, asking for a story on Emma B. Freeman, the Eureka, California, photographic artist, and suggesting that the story be made interesting and instructive to devotees of the photographic art.

As my knowledge of photography is limited to a rather critical appreciation of the finished picture,—be it good, the realm of technical details regarding solutions, plates, cameras, methods and other matters so glibly discussed by students of photographic art, must necessarily not be invaded. Also, as this story is to be illustrated with a few examples, I shall leave all criticism of her work to the tender mercies of the readers of CAMERA CRAFT.

Through this process of elimination I am reduced to the pleasurable task of confining my story to telling what I know about the career, aims and ambitions of a little woman whose pluck, talent and persistency of effort has earned her a place among the aristocracy of American photographic artists.

That "artists are born and not made" is surely demonstrated by Emma B. Freeman, for while it was the dream of a little eight-year-old, pigtailed, Nebraska girl, that "someday" she would be a real artist; a farm in the middle West during the "lean" years cannot, by any stretch of imagination, be considered a

desirable environment for the birth, nourishment and development of artistic tendencies. But from the time "little Emma" found that Nebraska clay could be fashioned into figures other than mud pies, and when her earliest artistic effort, drawing "teacher" on the blackboard, earned her fame among her schoolmates and a spanking from her subject, every moment that could be stolen from study and the never ending task of "helping mother" was consecrated to drawing pictures and coloring them with crayons, a ten-cent box of which was her first and greatly prized possession in the way of artist's materials.

ADMIRAL W. B. CAPERTON Commander-in-Chief Pacific Fleet
Copyrighted 1916 by Emma B. Freeman

In early womanhood the starved and narrow existence incidental to chaperoning cows, pigs and chickens on the homestead, became unbearable to a nature that thrilled with high ideals and a love for the beautiful. Possessed of a spark of artistic talent that would not be smothered, in the face of warnings of friends and entreaties of relatives, a pilgrimage was planned to San Francisco where the little farm girl had ever dreamed lie fame and fortune.

Emma's carefully saved "egg money" fund was soon depleted in buying an outfit for the journey, and for purely economic reasons a ticket was purchased to Denver only. There a rapidly thinning purse necessitated a flight to a haven of refuge behind the ribbon counter of a department store, where a weekly pittance of six dollars was soon augmented by the manufacture and sale of flowers fashioned from ribbon and the occasional sale of a sketch to a friendly art dealer.

Two years later found Emma B. Freeman in San Francisco making leather novelties and burnt wood gee-gaws, painting Easter and Christmas

cards, coloring photographs and doing sketches in pastel and water colors. The mornings were spent in soliciting orders that would be made and delivered in the afternoons. The business grew apace, and later a tiny store and shop was opened at the corner of Octavia and Union Streets.

Then came the San Francisco fire and a fresh start on a borrowed hundred dollars capital in the city of Eureka. There the little San Francisco art shop was duplicated and the business met with varying success until the owner of a rather dilapidated photographic studio induced Mrs. Freeman to purchase his outfit. With this, but without the slightest knowledge of photography, this nervy little woman worked day and night to make the best of, what she then thought was a very bad bargain.

Quickly acquiring a technical knowledge equal to that of her predecessor, and taking a course at the Eastman school, by bringing into the new departure her unfailing energy, business acumen and artistic ability, but a short time elapsed before her portraits and studies became so widely known that they were in great demand by magazines, art stores and the like. The business of her little studio grew to such an extent that it became necessary to engage the services of a business manager, and to H. B. Burnett must be given the credit of materially assisting in the ultimate financial success of the little pigtailed, eight-year-old kiddie, who, on a Nebraska homestead, dreamed, over mud figures and school crayons, dreams of an artistic career that is today a very much assured fact .

A PORTRAIT

Mrs. Freeman refuses to talk "shop", and at the time of this writing is more interested in the subject of "national preparedness" than in photographic means and methods. An hour's interview elicited only the fact that she would be at the "front", and had offered her services, as a photographer, to the Government. My previous acquaintance with the lady justifies, however, my deduction that her artistic success is largely due to a personality that is unique inasmuch that she unconsciously ingratiates herself into the affections of her subjects. Even the casual sitter for a portrait is at once at ease and willingly submits to her personal magnetism and charm. This is strongly demonstrated by her success in photographing Indians, for the Indian's traditional fear of a camera is by no means a fiction, but a hard and fast fact, born of and bounded by superstitious beliefs that succumb only to the influence of a master mind combined with implicit confidence in the photographer's honesty of purpose.

THE MESSAGE OF THE GREAT SPIRIT
Copyrighted 1915 by Emma B. Freeman

THE MADONNA OF THE INDIANS
By EMMA B. FREEMAN

"I love my Indians," said Mrs. Freeman to me one day. "They are a wonderful people; shy like strange children, but, once the barrier of timidity and suspicion is removed, there is revealed a noble and loveable character, and the camera, in its merciless registration of detail in both physical and mental perfection or imperfection, surely proves that the 'original American' is of a much higher type than generally credited.

There is much, much more that I could write about Emma B. Freeman: That she studied oils and pastel under Cadenasso, of San Francisco; landscapes under Harmon, the well known artist of the redwoods; and that a permanent Freeman exhibit and sales room will soon be opened in San Francisco. But that sounds too much like press agent stuff, and I shall therefore close this brief sketch of her career.

Electric Light For Portraiture

By Frank E. Cramer

Illustrated by Hartsook Studio, Cardinell-Vincent Co. and the Author

PORTRAIT OF THE AUTHOR—Made with the Northern Light used in an ordinary room

In following home portraiture for over fourteen years, the writer has seen the practice evolve from uncertainty as to results, on the part of both the sitter and the photographer, to the present stage where good results are as certain as under the skylight, the good quality of the portraits being limited only by the skill of the operator.

My earliest home portrait work was all done with an entire dependence upon daylight. With daylight one must take the light as he finds it, which means that he can employ it only during the brightest part of the day which is usually between 10:30 A. M. and 2:30 P. M., and this practically limits the photographer to two sittings a day. In addition, the available background effects are confined to such as are afforded by the accessories nearest to the available light, or those parts of the rooms immediately about the window selected, when often the most artistic and pleasing arrangements of furnishings suitable for a background are to be found where exposure by daylight would be out of the question.

The flash-light, about this time coming into some prominence through the offering of portable portrait apparatus, appealed to me as perhaps affording a solution of some of the difficulties under which I was working. Pictures of children and elderly people seemed to be more likely of success with the shorter exposure required, and the hours available for work were extended, making a larger volume of business possible.

Some very beautiful results have been, and are being obtained by the flash-

TWO EXAMPLES OF HOME PORTRAITURE—The first, that of President Mackintosh of the California Camera Club, was made with a diffusing lens. The other shows the detail and fine texture that can be secured

light system. The ghostly stare of the earlier flash work, with the soot-and-whitewash effect once thought characteristic of the flash, has been replaced by pleasing expressions and a degree of texture and detail equal, if not superior, to that secured under a skylight. But the dear public, the sitters, were dissatisfied. They demanded something that would not startle with its abruptness, claiming that the suddenness of the light made them nervous. It was evident that some of them were made nervous, for their expression often showed the effect.

About this time I read of the use of banks of incandescent lights, but they were too bulky and slow for home portrait work, slow even for the studio. There were various forms of carbon lamps that permitted fairly short exposures but produced harsh, indifferent effects. They required special wiring and installation of apparatus that disqualified them as portable equipment.

Trying out a number of these lights and almost despairing of finding anything entirely satisfactory, I ran across some examples of portraiture made with an arc lamp; and, thinking that if such work could be done in a studio, the same light, if portable, was just what I wanted. The light, I found, was what is called the Northern Light, one that is portable in the extreme, being supplied in a form that permits it to be packed in a small fibre case, not so large as a suit case, yet the light can be quickly set up ready for use.

The light seems to be particularly strong in actinic rays, as, while the harsh glare of the old form of light is entirely absent, the exposure necessary is surprisingly short. It was only after making several negatives that I could bring myself to the avoidance of over-exposure. Even with a screen to subdue the

light for various artistic effects, the exposures required ranged from only one-half to a whole second. Diffused only by the holophane reflectors attached directly to the light, portraits of adults require from one-fourth to one-half second, children in light drapery requiring from one-eighth to one-quarter.

Another feature that should be mentioned is the what may be called the carrying power of the light. This is particularly noticeable when the light is used for large groups, home dinner parties and the like. Not only this, but the light blends beautifully with daylight, thus permitting the making of some most pleasing effects, when the opportunity presents. One of the illustrations herewith shows a picture of this kind. This is not only advantageous to the portrait man but should make the light of no small value to the commercial photographer. The portrait photographer, the one using the regular skylight, has, perhaps, the greatest opportunity of utilizing this feature in producing pleasing and unusual artistic two-light effects in unlimited variety.

A HOME PORTRAIT—Combination of Northern Light and daylight from the window shown, giving a very pleasing result. Photograph by Cardinell-Vincent Company, San Francisco

As to the method of using the light, there is really little that can be said. One has only to assume that the front of the lamp hood is a small skylight from which the light spreads out instead of passing through in a straight path. Instead of raising both the upper and lower curtains in order to get the light from a higher point, as with a skylight, the light is simply raised on its standard. Instead of moving the sitter about, the light itself is moved to the desired position. Working, with the light too close through fear of its not being strong enough is a tendency that one must guard against, as is also the inclination one has to give too much time and develop too far.

If one will bear in mind that the light spreads out as it proceeds from the reflecting enclosure in which the carbons burn, he will have no trouble in securing the most harmonious effects. Particularly soft and rounded lightings are secured with a screen in front of the light. The light is evidently quite strong in ultra-violet rays and for that reason the shadows in the resultant negatives are not as strong as they appear to the eye, although a quick exposure may give one just a little stronger high-lights than he expected. All in all, however, the effects secured are, once one gets over his inclination to over-expose, the same as the effect seen by the eye. The use of screens and reflectors is simplified by reason thereof, and the convenience afforded by the moving of the light instead of the sitter, is one that can hardly be over estimated, particularly in home portrait work where some particular background or placing of the sitter has been selected as being the most desirable.

In addition to all this, slightly turning the light from side to side gives one no little control over the treatment of the background. One can keep that portion of the room behind the sitter quite dark and subdued, or render it fully illuminated. A portable background permits the production of very charming shadow effects that, with but a little retouching, can be made most effective. In the studio the use of the popular white background is made a very simple matter because of the actinic quality of the light and its tendency to spread out rather than fall in a direct flood. With a simple graduated ground one can secure good contrast with any part of the figure by the simple expedient of cutting off a portion of the light with an opaque card held against the diffuser in front of the lamp.

Line lightings, halo effects, and the like are all very easily made by combining the electric light with daylight, only the smallest amount of experience, if

A GROUP OF CALIFORNIA CAMERA CLUB MEMBERS—Observe how well the light "carries" to the extreme end of group

TWO PLEASING PORTRAITS BY THE HARTSOOK STUDIO—Showing the possibilities of the light in studio work

any, being required. With the sitter posed so that daylight illuminates the further side of the head and the lamp so situated that the near or shadow side is illuminated, innumerable pleasing effects are obtainable.

For illustrations to this article I am using two portraits made by Mr. Anderson of the Hartsook Studio, this city, because these show the work of a photographer using the electric light for the first time. The home portrait by Cardinell-Vincent Company is a pleasing example of work done with the light, used in connection with daylight. The other examples are such as I have available at the moment and they are introduced, not as showing the best in posing and the like, but as showing the wide range of work that is made possible. There is really but little that I can offer in the way of instruction in the use of the electric light because it is all so simple. The possibilities are limited only by the photographic skill of the operator, being fully as great as with the skylight, with the further advantage that the light is always uniform, always ready, and always under the most full and complete control. When we add to these the quality of easy portability and quick setting up, the reader can see that in recommending it so strongly as the equipment par excellent for home portraiture, I am but voicing a sincere conviction based on actual practice with the light.

When the evening's mist clothes the river's side with poetry, as with a veil, and the poor buildings lose themselves in the dim sky, the tall chimneys become campanile, and the warehouses are palaces in the night, and the whole city hangs in the heaven, and fairyland is before us.—WHISTLER.

Using a Larger Plate

By Charles A. Harris

With Illustrations by the Author

The average hand camera on the market today may be considered quite complete within the limits imposed by its small size, and it is only hoped to indicate in the following how, in some cases, the user may exceed these confines. Those possessing, in connection with their camera equipment, a modern anastigmat lens, such as is fitted regularly to the better class of small cameras, should know that a plate one or more sizes larger than the camera calls for may be fully and sharply covered by using the smaller stops. This secures to the owner the facility of an excellent wide angle objective, so often necessary in photographing cramped interiors, tall buildings and the like. As I have managed it, a supplementary back to carry a larger plateholder is constructed, the small camera being used therewith merely for the purpose of utilizing the bellows and rack and pinion facilities for fine focusing. Incidentally another advantage is gained, that of securing a long draw for a short bellows camera, useful in copying and photographing small objects. By outlining the details for a particular case the necessary modifications for other varying cameras and lenses may readily be adapted therefrom.

Supposing then, we are considering a 3¼x4¼ camera of the bellows type designed for plates and film pack. The outside dimensions of this is about four inches wide by five and one-half inches long, when closed. The lens, let us say, is of five and three-eighths inches focus, and the bellows has eight inches draw. One of the extra capabilities we may expect of this outfit is that the lens, when properly stopped down, will cover either a 4x5 or 3¼x5½ plate, but there being no objection in having the new plate holder one or two sizes larger, we will arrange for a 5x7 size. This auxiliary arrangement will probably not be carried about to any extent and the extra margin in the matter of size may very well be in reserve for other lenses.

In the case under analysis, the 5x7 holder is necessary to take care of the two sizes of plates mentioned, and it so happens that this size also provides ample space for the small camera to be operated as explained. This decided, the holder becomes the starting point for measurements. Probably all are familiar with the method employed in making a simple form of wooden box. The two ends are usually thicker than the sides for secure nailing and, of course, the sides are nailed to the ends; not vice versa. The first step is to make such a box the length and width of which will correspond to the dimensions of the plateholder so that the latter fits like a bottom thereto. These measurements should be full rather than scant so that the holder may work smoothly. The depth of this box will be seven and one-eighth inches. Care should be taken that the

raised strip across the slot end of the holder should come opposite the middle of the thicker wood forming one end of the box a channel or groove being cut in the edge of the board at that point for its accommodation. Each of the four sides of the box consists of single pieces of wood, as we shall want it light-tight. The material can be about one-half inch for the thick ends and one-fourth inch for the other two sides.

Next comes the making of the frame-like attachment for the reception of the holder. This, as shown in the sketch, is of light material, three-sixteenths of an inch in thickness. I found the thin boards of a lemon crate suitable. Completed, it fits snugly over the plate holder end of the box, except at the side coming opposite the channel or groove above mentioned, where it is open for the reception of the plate holder. In nailing this in position over the end of the box, a space is left about one-eighth of an inch more than the thickness of the plate holder. Across the inner side of the frame that comes in contact with the end of the holder when the latter is inserted, is glued a thin, wedge-shaped strip, which acts by forcing that end of the holder snugly against the edges of the box. A similar but removable strip is provided for the other end, this being inserted each time the holder or focussing screen is placed in the frame. These wedge-shaped strips, one at each end, serve as our substitute for the usual spring back. It is very simple and results in a light-tight back for the holder if the parts are carefully fitted. This enclosed pocket for the plate holder is really a better protection against light leakage than that afforded by the regular camera, for I have known instances where the latter leaked light around the edges of the holder. The removable wedge, the one put in place each time the holder is inserted, can be attached to the back with a short length of string, so as to be always at hand.

The focussing screen for use with this back can be provided quite easily by cutting away the press-board septum from the center of a regular holder, leaving about three-eighths inch margin all around. A piece of ground glass in this takes the place of and will register the same as a dry plate used in a complete holder of the same kind. The one for the focussing screen, can, if desired, be used as a plate holder at any time by placing a sheet of heavy paper between the two plates as they are put in position, one on each side. If preferred a frame can be made the same size as the regular holder, to carry the ground glass used for focussing, care being taken to have the ground surface come in the exact position of the face of the plate when the latter, in a plate holder is in turn placed in position. Should it be desirable to provide for a plateholder smaller in size than the necessary dimensions of the box, a smaller pocket similar to the one described for the accommodation of the holder and the ground-glass screen may be arranged in the center of a piece of board cut to fit the back of the supplementary box. This, nailed to the edges of the latter, takes the place of the holder frame illustrated in the drawings. Such an arrangement typifies, for our purposes the customary reducing back frequently used with large cameras.

This done, our supplementary back is ready to welcome the small hand camera with which it is to be used. Next in order comes the fitting of what

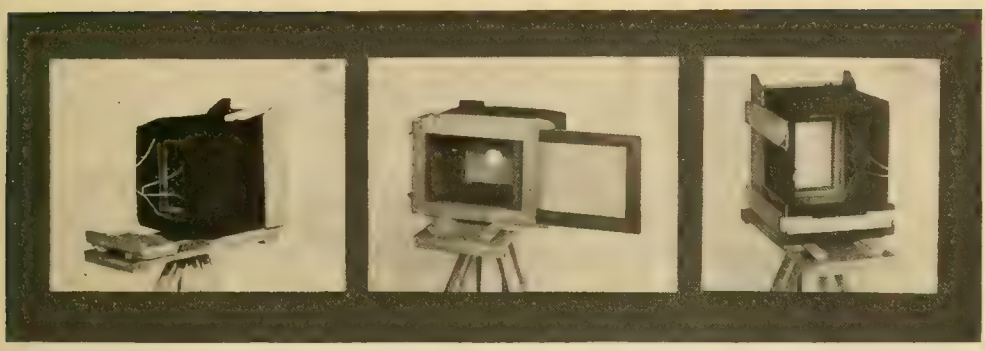
might be called a front board, as it will sometimes be used for carrying lenses, an arrangement that is to travel within the limits of our extension box or supplementary back, just described. As the small camera is to be attached to and operated with, this front, it should be so constructed that the back of the former will fit into a recess in the latter and form a light-tight joint.

The foundation is a piece of thin board in which an aperture is cut about the size of, yet large enough not to in any way obstruct the full capacity of, the opening in the back of the small camera. If the edges of this aperture are beveled there should be no danger in this particular. Around the margin of this foundation or backing is nailed a frame of half inch strips, forming the recess to receive the back of the small camera. Other strips to form a small raised edge around the inner edge of the aperture in the backing will assist in keeping out any stray rays of light that might enter at that point. To give this recessed front arrangement sufficient depth of body to insure its moving smoothly and without binding, thin strips from two and one-half to three inches wide are nailed, box fashion, around the four outer edges as shown in detail of the drawings. The frame portion may be located in the center or near the front or back of this casing, its position being regulated by the focus of the lens used. When finished the outside dimensions of this casing should correspond with the inside measurements of the box, or supplementary back, with just enough play for safety.

In use the back of the small camera is pressed in place against the front board and it will probably be well to provide a fastening to hold the two firmly together. The removable strip of wood across the front of the box as shown in the illustration, affords a rest for the run, or extension of the camera. As this front board carrying the small camera is changed to varying positions, the latter slides along this strip of wood, the run occupying a recess cut for its accommodation. By this means the camera is held level when used either in a horizontal or vertical position. The depth of the box should be so proportioned that the rack and pinion of the small camera comes outside this strip to permit all desired adjustments.

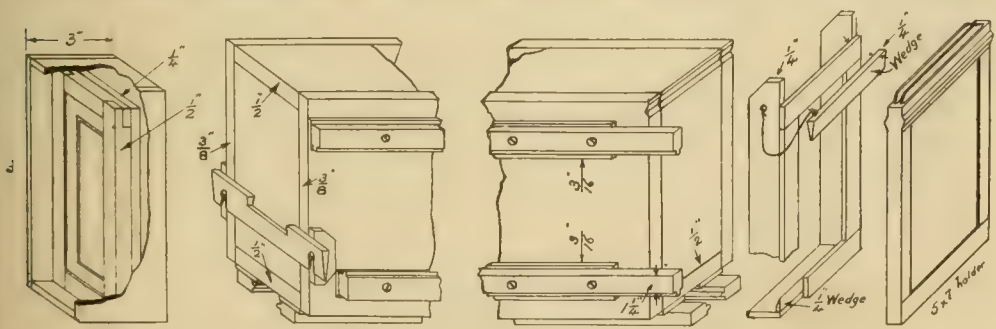
The apparatus, as now assembled, should be light-tight with the exception of a possible leakage around the outer edges of the recessed front. To remedy this, a strip of closely woven black cloth is utilized, forming what is, in effect, an improvised bellows, but in reverse position. One edge of the cloth is tacked around the outside of the front of the box near the edges, extending far enough inside and back to be tacked also to the edges of the recessed front when the latter is at its extreme range. The cloth strip has, of course, its two ends sewed together forming a tapering tube, before being tacked in; and, for the sake of uniformity I covered the box with this same material.

We are now ready to rest what has been so far constructed upon the tripod. What is known in view camera lingo as the "bed" is provided by taking a piece of half inch board, six by fifteen inches, and boring several holes along a line central thereto, so that the camera outfit may be balanced upon the tripod in different extensions. Upon experimenting it may possibly be found that one hole serves all requirements. An ordinary carriage bolt may be used in place



of a tripod screw to fasten this board to the tripod head. Next, strips about one and one-fourth inches wide are cut from some half inch tongue-and-groove lumber. The tongue-and-groove material used for hardwood flooring is only three-eighths of an inch thick and presents a neater appearance than the more common half inch lumber. Two of the grooved strips are nailed parallel on the board forming the bed just described and two of the tongued strips to each of the two sides of the box, so that the latter will have guide strips to enable it to be used on the run or bed in either a horizontal or vertical position. Of course the manner in which these strips give a sliding adjustment to the box is easily understood, and it is obvious that they hold the box securely to the base, although permitting the former to be shifted in position or removed entirely, at will.

A dead black paint is applied to all surfaces that might reflect light upon the sensitized plate. This is best put on before the parts are permanently joined; in fact, it is advisable to avoid putting the parts together permanently until one is quite sure everything is right. My own haste in this direction necessitated my taking things apart from one to three times, not anticipating certain adjustments. It must be remembered, for example, that in accommodating a larger plate one is dealing with a wide angle. This means that the lens must be such a distance from the extreme edges of the opening in the back of the small camera that the edges of the latter will not cut any part of the image falling on the larger plate. In taking care of this requirement one is liable to meet trouble in another direction, if the adjustment is not exact. With the back arranged just right, the end of the horizontal running board may still show a little on the ground glass, but, by using the rising front of the small camera,



a very little change of the lens from its central position will generally give a clear field. These difficulties need be apprehended only at the infinity focus. As the bellows is extended for near objects there will be found ample working margin in this particular. In my case the back of the small camera, as it is held in the front of the extension box arrangement, is in good position for infinity focus when an inch and one-half from the plate. When this point has been fixed satisfactorily, it would be well to nail a couple of thin strips on the inside of the box to serve as a stop to this front in which the small camera is fitted, so that future adjustments can be more easily and quickly made.

Finally, as is quite apparent, this piece of apparatus, the result of our love of labor, or rather labor of love, can be utilized as a complete camera by simply fitting a lens board to its front in the usual way. If the cloth is quite light-proof, the front can be drawn beyond the limits of the box section and attached to a small platform, the latter arranged to operate with the tongue-and-groove as with the other, the draw so secured being about ten inches. The wire handles shown in the photograph as attached to the front board, are used to regulate the position of the latter and are intended to be operated from behind the instrument. The draw obtained with the outfit described, when the edges of the front board are flush with the front of the box and the small camera, fully extended, in place, is about thirteen inches. The principles of camera construction, when reduced as above to a simple form for home application might be employed in the construction of apparatus for enlarging, reducing, lantern slide making and the like. Exeunt.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

UNMOUNTING DRY-MOUNTED PRINTS: A customer brought in a number of amateur prints, some of them mounted and some not, and wanted them all placed in an album in a given order indicated by numbers on their backs. When we came to separate the mounted ones from their mounts the fun started, they had been fixed down with mounting tissue. Soaking did no good, they wouldn't peel off worth a cent, and what could we do? The same afternoon a demonstrator came in and, learning of our difficulty, at once showed us how to do it. Taking one of the mounted prints he moved it around about a foot above the lighted gas burner that we use for making paste, holding it face up and horizontal. In less than a minute the print started to curl away from the mount, it was soon entirely free without any damage to either itself or the mount.—S. D. F., Minnesota.

MAKING FORMULAS AVAILABLE: Whenever I come upon a good formula, one that I feel may come handy some day or one that I wish to try when opportunity presents, I copy it on a card and file in a small box of suitable size. I file them in alphabetical order, using the name of the item as the filing key.—Russell Waldo, Indiana.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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Simply To Explain

Mr. Hood's article, "Ray Screens Used in Multiple," in our last issue, was written on the eve of the author's departure for a short trip. Expecting that his return would permit of his going over the printer's proofs, we ourselves delayed doing so until too late. Considering these circumstances, the errors, which are all our own, are surprisingly few and unimportant, thanks to the care and exactness of the author. None of them can possibly mislead the reader and we mention them only to absolve Mr. Hood from any suspicion of carelessness. "400" and "1586," used as totals in the formulas under the first two illustrations, should read 405 and 1572 respectively. On page 146, the thirteenth line from the bottom should read Cramer Spectrum instead of the plate mentioned; and, in the twelfth line from the bottom of page 148, the figure "7" should be an 8 instead. The first two errors were made in copying the data used in the titles from the backs of the prints, and the other two were made in retyping part of the article in order to incorporate a little additional matter that Mr. Hood supplied at our suggestion.

War Time "Perils of An Amateur Photographer"

Samuel Adelstein, an enthusiastic amateur photographer, a native son, a Director of the California Camera Club, and one of the Board of Governors of the Civic League of Improvement Clubs and Associations, recently had an interesting experience, one that might be termed "Perils of a Photographer".

Mr. Adelstein, while crossing the bay on the Key Route boats, late in the afternoon, indulging in a few "shots" at the sea gulls with his reflex camera. Bright and early next morning, one of Uncle Sam's Secret Service operators presented himself at Mr. Adelstein's home, charging him with having, the day before, "taken photographs of the fortifications on Goat Island!" and demanding the negatives. Mr. Adelstein took the gentleman to his workroom and showed him the sea gull negatives. Profuse apologies were tendered and the explanation made that the Secret Service Department ran down every report that was given it. In this case it seems that a somewhat nervous and zealous citizen, seeing Mr. Adelstein photographing while passing Goat Island, got it into his head that photographs were being taken that might be of value to the enemy, and shadowed the unsuspecting photographer to his home, immediately reporting to the Secret Service Department. In reply to Mr. Adelstein's query as to why this nervous citizen did not speak to him at the time, thus saving himself worry, the Secret Service man said, "The nervous citizen was afraid that if he approached you, you might throw the negatives into the bay." In these war times it behooves the photographer, be he amateur or professional, to be careful about "shooting" with his camera in the vicinity of Uncle Sam's preserves.

Let Us Try To Be Consistent

The average photographer, be he amateur or professional, is somewhat inclined to overwork a particular style or treatment. There is the professional who makes everything with a white background; or, perhaps he favors the dark one. Seemingly, he has no inclination to harmonize the ground with the subject, even when the matter is left entirely in his hands. If the drapery is dark and the lines difficult to handle, a dark ground makes for simplicity and concentration; while, with light drapery and pleasing lines, a light ground seems advisable. Then there is the professional who pictures all his sitters as leaning forward and into the picture space, suggesting a window with a flower box below that necessitates this position to the side. This particular pose of the head and shoulders is entirely foreign to not a few people, as any of us can testify after observing the behavior of our friends. Some, quite a number, will be found who persistently assume the more restful pose. And so on through a long list of mannerisms, if such they may be called.

And the amateur has his own inclinations to persist in some particular practice, that is not always consistent. There is the one who must always show an expanse of sky above his landscapes, let it matter not whether doing so carries out the feeling of the picture, or otherwise. If the intention is to express the idea of "all out-doors" as one man puts it, well and good. If the spirit of the scene is that of freedom, the open country, sky above the landscape is desirable. If the interest lies along the path or stream at our feet, the sky is not wanted. Another worker wants to make everything soft and diffused alike, regardless of the feeling he wishes his pictures to convey. Some subjects demand good definition, at least enough to suggest texture in the most important parts, while others are quite pleasing rendered in all the charm of the soft focus effect. And the same can be said concerning quite a number of like procedures that individual workers are all too prone to follow rather blindly.

Would it not be a good idea for each of us to question our work a little more closely? Do we do this or that for some definite purpose or is it simply done because we thought we might add to the artistic effect? If a light background is used we should be able to say that it was better suited than a dark one. If the image has been softened we should be able to say that the result is better than would be the case were the image sharper. In other words, let us be consistent, for truly, "Consistency, thou art a jewel".

A Correction

Accidentally, the titles to the pictures of "Trilliums" and "Liverwort," at the bottom of page 155 of our last issue, became transposed. The number of readers who have called our attention to the error is most gratifying as it shows a degree of interest in wild flowers, as well as in Mr. Bieseman's article, that we hardly expected to find existing.

"The faults of a work of art are the faults of its workman, and its virtues his virtues."—JOHN RUSKIN.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Ortho Plates and Light Filters

For all-round photographic work, a complete color correction is generally regarded as impracticable. It necessitates the use of a deep color screen, which prolongs the exposure considerably, and of red sensitive plates, which can only be handled in complete darkness or in a light that is very little removed therefrom. The consequence is that non-orthochromatic plates are still used for the many purposes for which they are quite suitable, though a great deal of amateur photography is done with orthochromatic emulsions. When we remember that practically all the roll film made is orthochromatic, and that orthochromatic plates of various brands enjoy a great popularity, there can be little doubt that, as far as the amateur is concerned, more exposures are made on color-sensitive plates and films than on those which do not possess that quality.

If such plates (and in what follows the word plates is used as including films) are exposed without a light filter of some kind, very little is gained. It would require an expert to pick out of a number of negatives those which had been taken on ordinary and those on orthochromatic; and even the expert might be puzzled or wrong. To understand this it is necessary to consider the fault for which orthochromatism is a remedy.

The light to which our eyes are most sensitive is yellow and yellowish green; they are less sensitive to bright red and to blue, and much less so to deep red and violet. Therefore, a patch of the most intense violet-blue that could be got, seen on a background of equally intense yellow would form a contrast of a powerful character, the violet appearing dark on a bright ground.

As every photographer knows, this is not at all parallel with the result on an ordinary plate. To the yellow and yellowish green it is almost blind, to blue it is very sensitive, to violet also it is sensitive, and there are other rays, which the human eye cannot perceive at all which affect the plate powerfully. These rays are called the "ultra-violet." To red light, also the plate is insensitive, so that light of this color can be used to illuminate a dark room.—The expression "illuminate a darkroom" is not quite the bull it seems. A "darkroom" must be dark to the sensitive materials that are to be manipulated in it; provided this is so, it cannot be too light to the eyes.

Orthochromatic plates are coated with an emulsion which, by means of certain dyes, has been made more sensitive to green, yellow, and sometimes to red, than before. But although this is the case, these dyes are not able to give to the emulsion the same sensitiveness as the eyes possess. It is still very much more sensitive to blue as compared with yellow; in fact, the difference is still so great that the advantage of the dyes is almost entirely hidden, as has been already mentioned. It is to remedy this state of things that a light filter or color screen is used.

The fact is sometimes overlooked that the photographer has a very useful color screen in the lens itself. Glass is comparatively opaque to the ultra-violet rays just referred to, so that they do not play so large a part in photography as they would do, for example, if our lenses were made of quartz, which is much more transparent to them. The atmosphere also absorbs a great deal of the ultra-violet light which reaches it from the sun.

In order to make the photograph show colored objects in the same strength of light and shade as the eye sees them, a plate must be used which is sensitive to light of all the colors to which the eye is sensitive; and we must also interpose in the path of the light a light filter which will absorb ultra-violet, violet, and blue rays to such an extent that the excess of sensitiveness to such light which is possessed by the orthochromatic plate is counterbalanced.

It might be supposed at first that all that need be done would be to adjust the light filter to the plate so that their combined action was to get exactly and always the same effect as is seen by the eyes. But while this is perfectly possible, and indeed work with such a combination is done daily, it is open to the objection that the plates can only be used in darkness, or almost darkness; while the light filter prolongs the exposure necessary to such an extent as to make hand camera work, except under the most favorable conditions, very difficult. So that, in ordinary everyday photography, it is usual to resort to a compromise.

Orthochromatic, or isochromatic, plates have their sensitiveness to green and yellow increased very much, but are still only slightly sensitive to red. With such materials, therefore, we can use a fairly bright red light in the dark room,provided it is the right sort of red, that is to say, a deep ruby and not an orange. Plates that are sensitive to red as well are called "panchromatic". We see, then, that the light filter used with orthochromatic plates is not one which makes the rendering absolutely accurate, but one which gives a perceptible improvement without causing too great an increase in the exposure.

The question we have to determine, therefore, is how far to carry the compromise, and it is evident that this will depend on the nature of the work to be done. The writer cannot refrain from putting on record his opinion that, for every photographer, except the mere beginner, where the prolongation of the exposure is not a serious matter and other circumstances do not offer difficulties, the best result is to be obtained with a panchromatic plate and a color screen deep enough and of the right tint to make the correction complete; the compromise of the orthochromatic plate and not very deep light filter is only fully justifiable when there is a necessity for it. No one who has learned to use panchromatics for landscape work, for example, is ever likely to go back to other material.

In the "self-screen" plate we have an orthochromatic emulsion which has been dyed so as to act to some extent as its own light filter. The consequence is it is impossible to make such plates as rapid as the simpler orthochromatic plates, since any light filter to act at all must cut off some of the light, and if it does that, must necessitate a longer exposure. If the light filter is in the emulsion, this is equivalent to making that emulsion slower. Self-screen plates are therefore not amongst the fastest, but the dyeing is not carried very far. Probably they are about half as fast as they would be did they not contain the screen dye, so that they are still quite fast enough for all ordinary purposes. They can be used in the hand camera, and generally for work for which the very utmost possible degree of sensitiveness is not an essential.

But a light filter which does not prolong the exposure more than twice, although better than nothing, is still very far from giving as full a correction as we are often glad to have; and so it comes about that separate light filters, which can be put on the lens for use as required, are largely employed by photographers. They are not of any practical value with non-orthochromatic plates, as they increase the exposure to an inconvenient extent; but they can be used with advantage either with the ordinary kinds of orthochromatic plates or with self-screen plates.

It is customary to describe these light filters as "three times," "five times," and so on, according to the effect which they are supposed to have upon the exposure. We write "supposed to have" because the classification is only a very rough one; it may serve to indicate to which group a filter belongs, but is not by any means a reliable guide for exposure.

When a light filter has been bought, one of the very first things which should be done is to find out what increased exposure it entails in ordinary circumstances; that is to say, with daylight during the greater part of the day. Towards evening when the light is more yellow, and by artificial light when it is very much more yellow, the exposure increase necessitated by the filter is very much less; so much so, as far as artificial light is concerned, that it is not usual to employ a filter with it at all; the light is yellow enough, that is to say, it is comparatively poor enough in blue or violet, not to require it.

Although the orthochromatic plates of different makers are not quite alike in their color sensitiveness, they resemble each other nearly enough for the same color screen to be used with them indiscriminately. If the photographer uses self-screen plates he will find that a color screen, which is, say, a five

times screen with orthochromatic plates that do not embody any light filter, does not call for quite so great an increase as that. The difference, however, is a very slight one, and the actual increase should be found by trial.

It has been the writer's frequent experience that the increased exposure required is generally under-estimated by the maker or seller of the screen. Seven or eight times is the increase generally entailed by a "five-times" screen, if full advantage is to be taken of it. It is a curious fact that if the negative is in the least under-exposed the screen does not seem to exercise its full effect.

For work with self-screen plates a five or even a ten times filter is the most useful, as giving the most complete correction. For general work, of course, the plates will be used without any other screen than that which has been incorporated with them, but when this is not sufficient, then, within reason, the deeper the screen that is used with them the better.

With those orthochromatic plates which are not provided with any screen in the emulsion itself, and with roll film, it will be found that a two or three-times screen is often very helpful. It will enable the cloud forms to be got on a landscape negative with full printing value, and at the same time it does not make the exposure so long as to put hand camera work quite out of the question. It should be supplemented by one which calls for twice or three times as much increase, for work where correction is more important than keeping the exposure short.

It has been suggested that when a deep screen is needed, one weak one may be superposed on another, or a weak and a strong one used together. There is generally nothing to be gained by this, since the strong filter cuts out what the weak one cuts out and something besides. That this is so can be seen by holding one partly over the other; the two screens together, if their color is the same, and they only differ in depth, will not appear appreciably denser than the deeper screen by itself.

So far from a "six times" and a "three times" screen requiring nine times the exposure when the two are used together, the writer has found by actual trial that the two screens combined did not call for an exposure appreciably longer than was needed by the "six times" screen used by itself. And if the exposure necessary is not longer, it is evident that the screen cannot be serving any useful purpose. On the other hand, the use of two separate filters, with the thick glasses of which they are composed, is likely to affect the definition prejudicially.

When we come to the use of panchromatic plates, the screens used are almost sure to belong to the "K" series of Messrs. Wratten and Wainwright. These are made in three depths, known respectively as K1, K2, and K3, and, although they are primarily designed for use with the Wratten panchromatic plates, they are quite suitable for orthochromatic plates of any kind. The K1 screen, used with an orthochromatic plate, may be regarded as about a "three times" screen, and the K2 a "ten times." With the Wratten panchromatic the K1 increases the exposure something less than twice, the K2 about four times, and the K3 about six times; but the actual figures of the increase required by each batch of emulsion are given in the box with the plates, so that accurate work can be done at once without any need for experimenting.

With these plates the K3 gives a rendering which is approximately correct, and therefore should be used whenever circumstances permit. The K2 is intermediate, and is suggested as being suitable for portraiture, where to avoid the necessity for retouching, the color correction must be as complete as possible, though at the same time long exposures cannot usually be given. The booklet "Real Orthochromatism," published by Wratten and Wainwright, will be found to be a good supplement to this article, as it goes into the subject in a more advanced manner than can be done here, and contains much that is of interest on orthochromatic work, whether the reader is a user of the Wratten productions or not.

It is sometimes said that the use of a color screen is carried to the extent of over-correcting the rendering; but, except with experimental home-made screens, this is hardly likely. None of the commercial screens, unless deliberately made for that purpose, will over-correct; in fact, with the exception of the K3 and one or two special kinds, none of them correct fully. Photographers are so accustomed to an incorrect rendering of colors that they are apt to regard any approach to truth as an exaggeration, while the disappearance of color contrasts in a corrcet rendering may easily suggest that the orthochromatism has been overdone. It may be

overdone from the point of view of the impression required, but it may none the less be a perfectly correct monochrome rendering of the subject.

Inasmuch as orthochromatic work on the whole must be better than non-orthochromatic, by eliminating a defect inherent in the ordinary emulsion, one cannot but wish to increase the number of photographers who follow it. In the hope of doing a little towards this end has been the cause of this article being written, and if the writer has at times appeared to be teaching his photographic grandmothers to suck eggs, he asks these experts to forgive his presumption for the sake of the cause which he is advocating. —GEORGE BASSETT in *Photography*.

Photographing Coins and Medals

In the first place, it may be well to state that of the various metals, gold, silver, nickel, copper and bronze, silver and nickel are the easiest, and bronze the most difficult to photograph.

Silver coins present very little difficulty if moderately clean and untarnished. Discolored specimens demand a longer exposure, and reveal less detail in the finished picture. Though discolored coins should be rejected, we must not go to the opposite extreme and select specimens possessing a brilliant polish. These latter make patchy and more or less grotesque pictures. In our own work we have found that to dab an over-polished coin with a stick of putty overcomes all difficulties of this nature and in no wise injures the surface. Darker coins, those made of copper and bronze, often give great trouble, especially when they are stamped in low relief. In photographing such specimens as come under this head, it is very necessary to see that the light falls on the coins from one side in such a way that the shadows may be emphasized as much as possible. If a front light be used, the pattern is often non-existent in the finished print. When the coin is dark and the rendering of the detail somewhat indistinct, I proceed as follows: A stick of light brown chalk is scraped with a pocket-knife, and a trace of the powder rubbed into the recesses of the design. In this way the light and shade in the photograph are exaggerated sufficiently to obtain a clear impression. Of course, the merest trace of chalk proves ample: more will fill up the detail and cause greater harm than good.

A very simple method of arranging the apparatus and specimens is to place the camera on a table with a wooden box in front of it, one of the sides of which being parallel with the focussing screen. A white postcard is then pinned to the face of the box in the field of the lens. The coin to be photographed is stuck on to the card by means of a dab of plasticene. With medals no adhesive is needed, as the specimens may easily be held in position by pushing a pin through the top edge of the ribbon. The coin or medal casts a certain amount of shadow upon the card, but not enough to cause an unpleasant effect. In fact, the shadow is just sufficient to help on the idea of relief.

It is very necessary to see that the piece is not turned even in the slightest degree, away from the light. If it is, the whole face will be dark. If a medal be slightly tilted away from the light, the surface will look more like bronze than silver. A little dab of wax or modeling clay applied under the piece permits its being tilted sufficiently to face the light properly, and so give a better rendering of the metal. Reflectors, that is to say, sheets of white paper, are very useful for imparting brilliancy. A sheet placed at the lower left-hand corner is advantageous, but a mirror, used as a reflector, imparts a snowy effect.

The obverse and reverse of a coin can both be taken on the same plate, a convenience which coin photographers will readily appreciate. The reverse face of a coin can be photographed whilst a black card is fixed in the bellows to block out the left half view, and the obverse face afterwards taken when the black card had been placed so as to block out the right-half view. While the plan answers perfectly, equal exposures must of course be given, and the photographer needs to place some guide marks on the card in order that he may obtain the two views on the same level.

Finally, we may say that it is always preferable to photograph an actual coin rather than a plaster cast made to represent it. The latter seldom gives a correct idea of the material, its color, and its weight; but by following the simple suggestions made above, a fairly good representation may be usually obtained.—S. C. Johnson, M. A., D. Sc., in *The Amateur Photographer*.

NOTE: Attention is called to the method described in my article in the June, 1916,

issue on "Copying—Photographing Small Objects." [H. D'A. P.]

Better Bromides By Re-Development

It may be stated as an incontrovertible fact that on bromide paper, prints, whether made direct or by enlargement, may be improved, not only as regards the scale of gradation, but also in respect of colour. The operation is so simple, carried out as it is, not in the dark-room, but in full artificial or day light, that it behooves every worker who desires to get the best out of his negatives to give it a trial.

The writer has been interested in this branch of bromide work for a considerable time, and although all the available formulae were given a trial, regularity of result could not be depended upon. As in the case of the little girl, "when they were good, they were very, very good; but when they were bad, they were horrid." The horridness took the form of pinkish and brown stains extending over the greater part of the surface of fully fifty per cent. of the prints, and these stains could not be avoided, in spite of the most scrupulous attention to washing. It appeared, therefore, that the existing formulae required improving, and a somewhat extended series of experiments enables the following instructions to be given with a feeling of confidence that successful results will be obtained.

Two methods are open according as a cold engraving black or a warm black tone is wanted; for the first of these the following bleaching solution is prepared:

Copper sulphate	240 grains
Sodium chloride (cooking salt)	120 grains
Sulphuric acid	20 minims.
Water	12 ounces

Extreme nicety of weighing is unnecessary, and an avoirdupois half and quarter ounce may conveniently be taken.

The bromide print, made in the usual way with any developer preferred, fixed, washed, and dried, is soaked a few seconds in water, and then flowed with an ounce or so of the bleacher. After the image has been converted to a pale brown, the solution is poured away, and the print washed in running water for five minutes, longer washing being not only unnecessary but injurious. Here let it be said with emphasis that the bleaching solution, once used, must be discarded; to return it to the stock bottle, from a mistaken idea of economy, is to solicit trouble for the future.

The print is now ready for redevelopment, and one, and only one, developer may with certainty of result be employed, namely, acid amidol. The bleacher is acid, and practice has proved that the developer should be acid also. It is prepared at the time of using by dissolving a small teaspoonful of sodium sulphite (the anhydrous form is handy, owing to its ready solubility), in three ounces of water, and adding a small saltspoonful of amidol and about thirty minims of sodium of bisulphite lye; this is sufficient for a couple of 10x12 sheets. Theoretically, a second fixation should not be necessary, but tests with sulphide have revealed the presence of unconverted silver chloride, even when development appeared complete, and a brief immersion, say a couple of minutes, in the usual hypo bath should now be given; a sufficient wash completes the operation.

To obtain a warm black tone, the print is bleached in a solution consisting of a teaspoonful of common salt dissolved in a couple of ounces of water, to which is added one dram of sulphuric acid, and sufficient of a strong solution of potash permanganate to give it a rich crimson colour. As bleaching proceeds, the solution loses colour, and further small additions of permanganate are made until the image has entirely vanished. If sufficient salt and sulphuric acid are used, there will be no staining, and a wash for a minute or two will leave the print pure white and ready for redeveloping.

The same developer, acid amidol, is employed, but development will be rather slow unless the dish is carried out of doors and held under the sky, when it will be complete in about one minute if the daylight is good.

When the nature of the subject calls for a less intense colour than black, a rich dark sepia is obtained by the application of ammonium sulphide thirty minims to two ounces water, after the use of this bleacher.

The sodium bisulphite lye consists of:

Sodium sulphite, crystals	5 ounces
Sulphuric acid	6 drams
Water	10 ounces

The sulphuric acid is poured into the water, the sodium sulphite added, and the bottle is shaken until solution is complete. This lye is a valuable addition to fixing baths for negatives and bromide prints in the pro-

portion of about three drams per pint of bath.—David Ireland, *in Amateur Photography.*

Three-Color Screens

A somewhat curious process figures in a recent French patent, that of L. Paris and G. Picard. In the making of three-color mosaic screens for the production of color-screen-plates, it is proposed that grains of phosphorescent zinc sulphide should be used instead of starch grains. The grains are to be saturated with a concentrated solution of alum and then treated with ammonia in order to produce a thin coating of gelatinous alumina which can be stained by treatment in a suitable dye solution. These particulars are from the abstract of the patent specification published in the "Journal of the Society of Chemical Industry," which in an earlier number has made reference to an earlier patent of L. Paris and G. Picard, in which the claim is for the use of phosphorescent substances such as calcium and zinc sulphides, incorporated in the sensitive film, emulsified with gelatine or applied as a varnish for the purpose of reducing the necessary time of exposure.—*British Journal of Photography.*

Stereo Business Photographs

The efficiency of the stereoscopic photograph in replacing the carrying of actual articles by a commercial traveler has often been the subject of recommendation, but apparently the idea has taken more concrete shape at the hands of a firm, the Cortescope Company, of Cleveland, Ohio, which has designed a stereoscope of the portable type which, with a set of fifty to seventy-five stereo photographs, can be carried in a case of about the bulk of a quarter-plate folding Kodak. We read in the *Electrician* that the stereoscopic photographs made for this instrument are already being used by many firms in America as a means of dispensing with travelers' samples, and have been particularly used in showing purchasers details of pieces of machinery. In conjunction with the customary drawings of the engineering draughtsman, the stereoscopic photograph with its clear rendering of the relative positions of parts in even an intricate piece of mechanism is stated to have proved itself a most valuable means of satisfying customers that goods come up to the maker's claims.—*British Journal of Photography.*

Photographic Ink

A good reliable ink for writing on photographs, which may interest some readers, can be made up with the following chemicals, thus:

Potassium iodide	10 parts
Iodine	1 part
Gum arabic	1 part
Water	30 parts

The resulting ink will produce white lines on the background of the photograph.—P. E. O., *in Amateur Photography.*

Another Use For The Process Screen

The use of the process screen is generally limited to the production of half-tone negatives by the photo engraver, but another use was indicated in a lecture by Professor J. W. Nicholson, of London University given before the Rontgen Society recently. Professor Nicholson has been carrying out some researches which have involved photographing the spectrum, and has used the process screen to solve the difficulty of working out the exact contours of the image of the spectra on the photographic plate. Instead of photographing in the ordinary way straight on to the plate, he has photographed through a screen ruled with lines one hundred to the inch in two perpendicular directions, so that the resulting images are composed of very small dots extremely close together and forming a regular pattern. Anyone who has ever photographed the spectrum is aware of the importance of picking out the extreme boundary of visibility, but this becomes a perfectly possible thing to decide when it is a case of saying which is the last of the black dots to be seen in any direction all around the edge of the figure. By this means Professor Nicholson believes himself to have solved the trouble of the personal equation, and the results obtained by the method are much more accurately in correspondence with theory than those obtained by tracing the boundary on an ordinary photograph.—*Amateur Photography.*

The Adaptability of The Eye

A communication from the Research Laboratory of the Eastman Kodak Company, based in part on recent experimental work by Dr. P. G. Nutting, in the investigation of the behaviour of the eye in various degrees of illumination, reads as follows:

Within the past few years very consider-

able headway has been made in the science of illumination, and many interesting data have been recently obtained at the Research Laboratory of the Eastman Kodak Company upon the sensibility of the eye to various degrees of brightness and contrast in the field of vision. For its measurement and classification novel pieces of apparatus have been designed and made.

Illumination and photography are related in that they both depend on the laws of retinal reaction—the sensitiveness of the eye to light. And knowledge of the laws which govern the action of light on the eye must be of vital interest to the photographer.

Good lighting is that which produces good seeing, and the standard of good seeing is the ability to see detail with comfort and efficiency. Good photography is the proper illumination and exposure of a subject so that it may be reproduced with detail in highlight and shadow, with bright or dark surroundings comparatively subordinated and a gradation from highlights to shadows, so that a round object will be given the appearance of roundness on a flat surface.

Good seeing is the degree of sharpness by which we observe contrasts and definition in detail, with an amount of light that produces neither strain nor fatigue. It is governed by the amount of light reaching the eye. This in turn has to do with intensity, distribution, and colour, depending upon the brightness and contrast in the object, which is determined by its illumination and reflecting power, and also depends upon the intensity or brightness and position of the light-sources. The indirect lighting system now so much in vogue may be instanced as an aid to good seeing.

The eye is just like a camera in that it has a lens, it has a sensitive surface, and it has a box between the sensitive surface and the eye, which encloses the sensitive material. The camera, however, differs from the eye in that a camera exposes its film for a limited time; if the subject is dark the exposure is long and if it is light the exposure is short. The eye has to be exposed all the while to the brightness of the scene that is being recorded. The sensitive material in both the camera and the eye is necessarily destroyed by exposure; otherwise we should never know what was happening at all since no image would be produced. In the camera it is destroyed or altered once for all, and the exposure has to be calculated so that the necessary amount of alteration is produced. In the eye the sensitive material is created by the body as it is destroyed, and the amount of the sensitive material or the sensitiveness of the eye is adjusted according to the brightness of the light outside. It is as if in the camera, instead of giving a variable exposure, a fixed exposure were given and the sensitiveness of the material were altered according to the light.

The eye adjusts itself in the range of one million to one, and may be roughly divided into four levels of brightness as follows: The brightest, bright sunlight on a white surface; the indoor average illumination during the day, which is only one-one-hundredth of the brightness of bright sunlight outside; the average artificial illumination indoors at night which is one-one-hundredth of that indoors in the daytime; and, the level illumination at night outside, which is one-one-hundredth of that indoors at night. Tabulated as follows:

Bright sunlight out of doors	1000
Interiors in daylight	10
Interiors at night, artificial light	.10
Out of doors at night	.01

We thus see that out of doors at night it is roughly one million times less bright than out of doors in bright sunlight.

If we could imagine a pair of scales that would weigh anything from a ton of hay to a marble with equally high precision, and would swing perceptibly to the weight of a fly's leg, we would get an idea of the range over which the eye operates.

The brightness of objects seen by the eye depends upon its sensibility. We, therefore, speak of lighting in terms of comparative brightness or conditions of light. The actual brightness of an object is relative to the brightness it produces. An illuminated headlight makes a feeble flicker at midday compared to its brilliancy at midnight.

In order that the eye may adjust its sensibility, there elapses a certain amount of time after the change in the brightness level of the objects around so that the eye has to take a certain amount of time to adapt itself. The iris diaphragm shuts and opens almost instantaneously to make a protection while the retina is adjusting its sensitiveness. In adapting itself to a small change it acts quickly, but when going from bright sun-

light to darkness it requires about half an hour to adapt itself almost completely; total sensibility, however, is not reached until the end of an hour or so more. Where the contrast is less severe, as in passing from a room brightly lighted by artificial illumination to a dark room the time of adaption is considerably less, about five or ten minutes. The sensitiveness of the eye when coming from darkness into sunlight decreases for about an hour. It is found experimentally that the retina takes longer to grow in sensitiveness than it does to lose sensitiveness, so that if a light varies rapidly from bright to dark, the eye loses sensitiveness as the light becomes brighter, and does not recover so much as the light becomes darker, so that you get a diminishing sensitiveness when there are alternate bright and dark periods, as when passing along a street at night lighted by street lights.

In viewing or focussing interiors the best results will be obtained if the eye is stepped down from the high-lights through the half-tones to the dense shadows, giving it an opportunity to accommodate itself to the steep drop in intensity between the extremes. It will perform its work more quickly and with less fatigue than if the change was made direct from the highest to the lowest, the detail will appear more quickly and the eye will be sufficiently accomodated to work at maximum efficiency.

Lighting contrasts vary considerably in living rooms, workrooms and offices, but the sensibility of the eye to contrast has a wide working latitude, and, if exacting work is not being done, the general brightness may vary from one to a hundred degrees without discomfort. Where the work demands close attention, the best possible adjustment of light should be made, one that is equal to good interior daylight lighting must be maintained or created by artificial illumination.

The retina resembles the photographic material in another respect in that it can only render a certain limited range of contrasts, and if the contrast is too great for the eye to be able to bear it, discomfort is produced. In the same way a glare spot, which is an area of excessive brightness, makes the eye very insensitive to other objects, which is very important in dark room lighting. On entering a dark room we "get our eyes" much more quickly when we try to pick out objects than if we merely close the eyes, a common practice. If, instead of stepping immediately from a bright illumination into a darkened room, closet, stairway, motion-picture house, etc., a pause of only a few seconds were made, the eye would adjust itself sufficiently, so that we could proceed without stumbling or bumping into objects.

Contrasts are almost entirely due to two causes: differences in reflecting power and depth of shadow. Shadows will also tend to depress the sensibility of the eye. Excessive contrasts should be avoided, for the reason that the eye has not been sufficiently developed to accommodate itself to them. The contrasts out of doors seldom exceed twenty to one in ratio of brightness.

Where contrasts must exist, as they do in dark rooms, every endeavour should be made to reduce the ratio of contrast to the lowest figure. This can be done by cutting down the necessary bright light to the least amount consistent with efficiency and by having an indirect safelight giving all the light possible consistent with safety.

Contrasts are created by bright lights, and bright lights are brightest when we look directly at them. A bright light deflected to the dark room sink, or bench, would still be as bright as it was before, but it would not appear so, and the eye would not be subject to the constant strain of adapting itself to an alternating brightness and darkness, not to mention the loss of efficiency. All lights should be kept out of the line of vision. Clear-glass electric-light bulbs should never be used in the dark room. They create very strong glare spots, and should be replaced by frosted bulbs, if they cannot be replaced by an indirect method of lighting. Quick changes in brightness should be avoided as far as possible. While they may merely produce discomfort, they can also produce temporary, and even permanent injury to the eye. Glossy finishes to woodwork, walls, etc., are another source of glare, and should be eliminated. As contrasts increase in intensity the eye instinctively demands a higher level of general illumination, which means that the eye seeks a compromise between the extremes of light and dark. The dark room should be neither unduly dark nor should it have any bright spots, safety and efficiency considered.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Our Vacation Pictures

While vacation time is not quite here, it is none too early to give the matter of the pictures wanted, some consideration. As a general thing the average vacation taker, the one who uses a camera, either thinks he must be on the sharp lookout for artistic bits and pleasing landscapes or else he gets the idea that the camera is to be used to record the more or less unnatural poses and expressions of his friends and their chance acquaintances every time a few of them get together in the form of a "group." The negatives the average vacationist makes run quite strongly in these two directions, and both of them are wrong. Making pictorial work is not a vacation job, although it may be a job done during a vacation providing the locality is one that has been selected for that purpose, preferably one that has been looked over and studied on a previous visit. Making groups of one's friends is another matter that should be gone about in a less hair-trigger manner. How much better it would be to explain that the shutter was not working properly, about nine out of ten times, and reserve the tenth for a group that could be made when just those wanted were included, when a proper setting was available, when some occupation, such as a rest by the roadside or a lunch under the trees, suggested a natural and interesting grouping. But to return to our vacation pictures, what is really wanted is something that will tell the story of the outing in a connected and logical manner. Just imagine you were writing a full account of it, something that was to be published in the form of an article or book. The pictures wanted are such as would be demanded by a publisher were he to print the story. And the illustrations he would want would be the ones that would themselves come pretty near telling the story without the written words. In writing the account of the trip you would dwell the longest on those points, those incidents, and those situations, that impressed you the most. These are the ones that should be photographed. Do not try to photograph each stage of the journey, do not worry because you cannot get a picture of the boat or train that you take as you start. Neither of these impress you very deeply. The story that you read in your favorite magazine is not illustrated in that way, although the lantern lecturer generally follows such a plan. But if the conductor, the train butcher or a chance acquaintance on the trip, should particularly interest you, interest you in such a way that you will remember him, for some time to come, as a quaint or lovable character, ask permission to make a picture of him in a natural and unconscious pose. The station where you disembark may be so very dull and uninteresting that its rampancy in that direction makes it impressive. Or it may be just the other way. But if it impresses you, make an exposure and try to secure a strong suggestion of its dusty bareness or of its more pleasing characteristic, as the case may be. And so on throughout the trip or vacation. If you will do this you will find on your return that you have a set of pictures that paint a story for your friends to enjoy, a set of pictures that permit you to tell of your experiences and your pleasures in the fewest possible words. And these few words will have an added interest, an interest that is worth while. Just think of the difference between showing an ordinary picture of a train and asking one to look at it while you told him of the quaint character you met thereon, and showing one a picture of the quaint character you met on the train and letting him imagine the appearance of the rolling stock. And, when the trip is a thing of the past, how much more satisfactory is the latter as a means of recalling to mind the pleasure of the trip. Try it once and I think you will agree that there are such

things as worth while vacation pictures that are neither uninteresting landscapes nor unsatisfactory "groups."

Using What We Have

Every spring the manufacturers' catalogues and the dealers' show windows cause a large proportion of us no little longing and regret because we cannot purchase the latest in cameras and lenses, the equipment that will enable us to cope with any situation that is capable of being photographed. Of course, those whose purse, or their disregard for the contents thereof, permits so doing, can indulge this craving; but does the gratification have any great influence upon the work produced? Very rarely. These new cameras, these new models, are all very nice, and if one must have a new outfit it is well to get the best that one can afford. On the other hand, would it not be a good idea to try, just for one season, and see what is the best that can be done with the camera on hand. We know of one good worker who is still using an old 4x5 camera of the regulation view pattern, and he is doing excellent work. His exposures are all made with the camera on a tripod, he either uses a medium slow plate or an orthochromatic with a ray screen on the lens, and his negatives look like little steel etchings. Not that he tries to get everything needle sharp, but there is no indication of fog or veiling, no soot-and-whitewash producers, and no soft, sickly, negatives that try the soul in printing. He knows what his camera will do and he works within its limitations. He argues that if some workers can make a wide variety of good pictures with a pinhole, he certainly should be satisfied with a fairly good lens. He has reasoned it out that if another worker can achieve salon honors with enlargements made from hand-camera snaps produced with a camera having no rising and falling front or similar devices, he should be satisfied with an instrument having these features only to a limited extent. He feels that when the opportunities for using his old 4x5 box become so few that he must waste time looking for them, it will be time enough to look about for a camera having wider capabilities. And there is a good deal of logic in his reasoning. Providing, of course, that it is light tight and in working order, the old camera will make just as good a picture, under certain conditions, as the most modern and expensive one. Take the last issue of this magazine and go through its pages. How many of the pictures shown could not have been made just as good, or better, with a camera costing only a few dollars at second-hand? The fact of the matter is, not a few of them were so produced. And what is more to the point, the men who made these pictures are not losing any sleep over the fact that they will not start their spring work with a new camera and lens.

Kachin Developer

A Maryland reader has a bottle of Kachin developer, evidently in good condition, but without a formula for its use. Kachin is the trade name used by a British firm for Pyrocatechin, a developer that can be used in exactly the same way as pyro. In fact, it has the property of giving an olive—or brown-black image of the same good printing quality as pyro. While it discolors in use as rapidly or perhaps a little more so than pyro, it has not near the same tendency to stain the hands and clothing. Another thing, the discoloration of the solution in use is not particularly indicative of its early exhaustion, although, of course, once a certain amount of work has been done by a given quantity of solution, the activity of the latter decreases accordingly.

Soft Prints From Hard Negatives

A New York reader has been entrusted with a collection of old negatives from which he is expected to make up several duplicate sets of prints. These negatives, originally made quite hard for albumen paper requirements, are rendered still more trying by reason of their original yellow tone having evidently increased in depth to some degree. One plan is to use bromide paper instead of gaslight, another is to remove the print from the developer the moment the image starts to appear and allow development to finish in a tray of water, and a third plan is to subject the print to a weak bath of potassium bichromate after exposure and before development. Using one or more of these remedies should give our correspondent the softest obtainable prints. With such old negatives it is practically useless to try any reducer or other like remedy upon the plates themselves.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

Reflectors

In motion picture work, as in still portraiture, reflectors are almost indispensible when properly used and almost disastrous when abused, although the use of reflectors is necessarily very different in the two classes of work.

In using a large canvas reflector on exteriors in which the contrasts of light and shade are abnormally great, a common mistake is to place the reflector too close to the performers, producing flat, moon-like faces by more or less completely neutralizing the natural shadows. Perhaps even more reprehensible is the mistake, often made in an exterior scene, of placing a brilliant reflecting surface, such as an aluminum painted reflector, too low. So doing throws a great deal of illumination from beneath, resulting in a theatrical effect similar to that produced by the foot-lights on a vaudeville stage. Incidentally, in making a large canvas reflector it is a good plan to have one side a dull white and the other finished with aluminum paint. The white side is usually of ample reflecting power for use in bright sunlight, as when softening the shadows under hats. The aluminum surface, on the other hand, is often extremely useful in brightening up a dark corner at a considerable distance; and also when it is not practicable to put the reflector directly in the sunlight at the proper angle.

Perhaps the most frequent mistake made in using the comparatively small reflectors employed in such close-ups as window and fire-light effects, lies in the use of a mirror without sufficient diffusion. This, of course, results in harsh contrasts. Perhaps as simple a remedy as any consists in covering the mirror with cheese-cloth; if one or two thicknesses do not suffice, others can be added until the desired results are attained. In this connection, however, it should be borne in mind that direct sunlight is not so actinic, proportionately to the visual effect, as the diffused light from the sky. A striking example of this is shown in the results secured when photographing late in the afternoon with the high lights of direct sunshine on the subjects. The negative does not usually show the sunlight nearly as brilliant as it appeared to the eye. Thus a very delicate highlight of direct sunshine on a subject, well illuminated by diffused light, may be lost entirely in the picture.

In a future issue we will discuss other points in the use of reflectors, although printed instructions can entirely take the place of personal experimentation.

Movie or Speed Pictures

A contemporary publication in a recently begun "cinematograph" department explains that it is desirable, in buying a motion picture camera, to get one that permits the shutter to be set at a small opening to stop motion in subjects near to the camera. This is the wrong idea entirely. Of course, in Graflex pictures, it is desirable to "stop" motion. In motion pictures, however, the object is to register, not every particular frame without blur, due to movement, but to get a film that will show motion naturally. Even the eye can not detect rapid motion close to it, and if rapid motion is photographed so close up that it projects as a blur, cutting down the shutter will merely produce jerky motion. This point has already been discussed in this department.

Tinting and Toning

Those interested in toning and tinting motion picture film will find much of interest in the book, "Tinting and Toning Eastman Positive Film," published by the Eastman Kodak Company, price two dollars and fifty cents, net. This book gives detailed instructions for tinting, and formulae for toners using all of the commercially practical toning chemicals, including iron, copper, uranium, and sulphiding. There is also a vanadium formula, although vanadium chloride is prac-

tically off the market at the present. The result obtainable with each toning and tinting combination is illustrated with an actual piece of film, there being shown about forty of these, altogether.

Selig-Tribune Frame Line

The Selig Polyscope Company, 58 East Washington Street, Chicago, who issue the Selig-Tribune, as well as the Gaumont Company, publishers of the Mutual Weekly, desire the picture frame-line on the perforation instead of midway between, although the latter has practically become standard among producers of dramatic films.

A New Film

The Eastman Kodak Company has recently put on the market a new film, one appreciably faster than that previous made and with a heavier emulsion that requires double the time for complete fixing and washing. For best results, the Eastman Company recommends a development time of not less than ten to twelve minutes.

Coal Yards And The Like

A. L. Erickson, Editor, *The Rock Springs Shovel,* is desirous of securing photographs of coal yards handling Rock Springs coal, method of handling, equipment used, displays or other forms of advertising, the plants of large consumers, and kindred subjects. Mr. Erickson wants and will pay for such pictures as he can use to illustrate the publication he is getting out to promote the sale of Rock Springs coal, and our readers who have suitable subjects available should write him for particulars as to just what is wanted, advising what they think they can supply.

Eager For Aerial Work

The Southern California Camera Club may supply recruits for aerial photographic work in the United States Army if a plan now under consideration is put into effect. With the general wave of patriotism sweeping the country the club members have announced themselves as eager to offer themselves in whatever capacity they can best serve and it is believed an aerial photographic corps will be the result.

It was announced at the last club meeting that all members enlisting will be exempted from club dues during the time of service. E. Radike Stancliff, was the first member to enlist, having joined the United States aerial reserve.—*Los Angeles Express.*

The Central In New Quarters

The Central Dry Plate Company has just bought the plant and property, covering over seven and one-half acres, formerly occupied by the M. A. Seed Dry Plate Company at Woodland, Missouri, a suburb of St. Louis. The pure air and pure water of this location afford ideal conditions for the making of dry plates, and the Central Company is to be congratulated upon its removal from its former city location. The firm expects, when the alterations which are being pushed with all possible dispatch are completed, to have one of the most modern and best equipped factories for the production of dry plates in this country. As announced elsewhere, F. Ernest Cramer, who has severed his connections with the G. Cramer Dry Plate Company, has assumed the presidency and active management of the Central Dry Plate Company and this is an added assurance that the future product of the firm will be of the highest attainable quality.

Picture Exhibit at National Convention

The Secretary advises as follows: The picture exhibit at the National Convention this year will be passed upon by judges, not yet secured, who will be able to analyze them and put into concise and positive terms the points that they find therein. The pictures in the portrait class will be divided into three divisions to overcome the objection heretofore made that it was impossible for those who viewed the exhibit to determine which the judges considered the better pictures. Prepare your prints now or at least begin to prepare them. Do not put this matter off until the last minute and then send in any old thing you have on hand. One may enter three pictures in the portrait class and three in the commercial class. There is no ruling as to size or style, and they may be framed or unframed. All exhibits must be packed and marked carefully. The Association will not be responsible for those lost.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

The Post Card Albums

Contributors to the postcard albums can, if they so desire, give brief descriptions of the pictures on their cards and these will be incorporated in the list of titles that goes with the route list under separate cover from the albums. Contributors to the album should send in five or six cards at once and attention is called to the fact that this number can be increased with a letter, all not to exceed an ounce in weight, going for a two cent stamp.

Very truly yours,
JOHN BIESEMAN,
Postcard Album Director.
Hemlock, Ohio.

Name and Address Wanted

A. W. Hare, I. P. A. 4278, Iroquois, Ontario, Canada, advises that he has recently received an exchange of six or eight postal studies with no name attached, the package bearing the post mark of Oakland, California. Mr. Hare is unable to forward return exchange and would appreciate the name and address of the member sending him the cards.

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.
J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.
Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.
Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.
James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.
NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.
George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.
Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.
Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

NEW MEMBERS

4345—G. M. Nicholson, 46 Gadsden St., Charleston, S. C.
3¼x5½ and 5x7, developing papers, of Philippine, Guam and Mexican views, bathing girls, figure studies, draped and undraped; all from original negatives. For same. Only first class work accepted and returned. Class 1.

4346—E. McClymont, 202 Robert St., Toronto, Canada.
1⅝x2½, 3¼x4¾ and 4x6, developing paper, studio portraits, landscapes, pinhole pictures, lake and city views, bathers, etc.; for wild animals, silhouettes, marines, figure studies undraped. Class 1.

4347—Helen Mittan, R. F. D. 3, Central City, Iowa.
Class 3.

4348—Konstantin Brener, P. O. Box 849, Hendersonville, N. C.
5x7 and post card, developing paper, of nude and semi-draped studies of the female; landscape and outdoor views; for female studies, views of mountains, seashore, etc., anything outdoors. Class 1.

4349—Floyd M. Williams, Box 444, Ames, Iowa.
3¼x4¼ and 3¼x5½, developing paper, of sunset, moonlight, bathing girls and figure studies. For the same. Class 1.

4350—Willis Lawrence, 251 Kingsbridge Road, New York, N. Y.
5x7 and 3⅞x5½, developing paper, of landscapes and travel. Class 2.

4351—C. H. Knowlton, P. O. Box No. 33, Vallejo, Cal.
2¼x3¼, developing paper, of Navy Yard pictures mainly. Class 2.

4352—Ben O. Trafford, Box 57, Houghton, N. Y.
2½x4¼, developing papers, of scenery and general subjects; for scenery. Class 1.

4353—O. N. Pruitt, Newton, Miss.
Class 1.

4354—Miss Grace Irving, Point Reyes Station, Marin Co., Calif.
3¼x4¼ and 3¼x5½, developing paper, of landscapes, ocean views, animals and miscellaneous subjects. For the same. Single weight paper only. I can send colored prints. Class 1.

4355—C. S. Beardsley, 1013 Amadora St., Vallejo, Cal.
2½x4¼ and smaller, developing paper, general views, clouds, tinted and plain, home portraits, children; for nude subjects, scenery, mountain views, marine views and clouds. Class 1.

4356—W. J. T. Williams, 11 Rose Street, Walkerville, Mont.
3¼x5½, developing paper, mines and mountain scenery; for landscapes, snapshots, or anything of interest. Class 1.

4357—Harry A. Brodine, 854 Union Ave., Bronx, New York City.
4x5 and 8x10 prints on smooth or glossy paper, of landscapes, marines and anything of real interest with interesting particulars noted on the back of each. Also artistic nude and draped studies. Exchange the above for first class work of the same description, in sets of six or more at a time. Class 1.

RENEWALS.

2894—John F. Fensel, R. F. D. No. 9, Montpelier, Ind.
Postcards, of landscapes, storm wrecks, wild animals, etc., for anything of general interest. Class 1.

3329 -Geo. R. Bunn, 1571 W. First St., Los Angeles, Cal.
3½x5½, developing papers, of National Parks, big trees, wild mountain scenery, figure studies, and miscellaneous; for similar subjects and good genre or anything artistic. Good work wanted and given. Prefer prints rather than postcards. Class 1.

4090—John W. Cook, 2511 Dwight Way, Berkeley, Cal.
Stereoscopic views of miscellaneous subjects. Class 1.

4210—E. D. Ayres, care The First Trust Co. of Hilo, Ltd., Hilo, Hawaii, T. H.
Class 3.

4275—Albin Jacobson, Howardville, Man., Canada. Class 3.

CHANGES OF ADDRESS

2151—Pres. Fidler, Westwood, Cal.
(Was 1351 East 38th St., Oakland, Cal.)

3358—Asa L. Brower, Box 23, Ustick, Idaho.
(Was care Forest Service, Ogden, Utah.)

4156—Thos. P. Mason, 3709 Cambridge Ave., Rosedale, Kan.
(Was 602½ Southwest Blvd., Rosedale Kan.)

4292—Morgan Bryant, Campaign, Tenn.
(Was Creek, Tenn.)

4308—Mrs. Mabel Meek, care Aluenite Mills, Marysville, Utah.
(Was Murphy, Ore.)

4310—C. D. Steves, Klickitat, Wash.)
(Was Lake Stevens, Wash.)

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

California Camera Club

The California Camera Club of San Francisco has been particularly active the past year, with every prospect of this condition being maintained indefinitely. Monthly illustrated lectures with slides or motion pictures, or both, are regularly held in a large hall, the series so far this year including "Scotland," by J. Wilson Lundy, "Glacier National Park," by R. A. Murray, "A Trip Through China With a Moving Picture Camera," lecturer, Dr. Jno. L. Lawrence, the last, for April, being Frank Splaight, of London, in wonderful impersonations of Dicken's characters. Demonstrations on various photographic subjects have been frequent, the last being given during the club's outing to Palo Alto and Leland Stanford, Jr., University, on April twenty-second, when A. B. Clark, Professor of Graphic Arts, talked on pictorial composition. Dances at the club rooms and dinners at more public places are also features of club activity that many of the members enjoy.

Pictorial exhibits of work by the members are regularly hung in the club's reception room at 833 Market Street, and frequently the work of others is displayed. Among the active members of the club whose work was shown at the recent exhibition of the M. A. A. A. Camera Club at Montreal, are J. A. Hickey, W. H. Rabe and W. H. Stephens. Outings are arranged for every month. On Saturday evening, March tenth, the members enjoyed themselves at the suburban home of Mr. and Mrs. Edward H. Kemp in Sausalito and on March eighteenth an enjoyable outing was held in the vicinity of the home of the late Joaquin Miller at Dimond Canyon. Leaving, June ninth, the club will have a nine day trip to Yosemite Valley. This is an annual event that the members and their friends look forward to with pleasant anticipation.

Oregon Camera Club

Tuesday evening, March twentieth, the Oregon Camera Club held the second of its instruction course lectures. This took the form of a demonstration in the coloring of photographs in oils by Fred P. Luetters of the Winter Photo Company. The next following six weekly lessons in the course will be devoted to developing, printing and then on to enlarging. The club will hold an exhibition of members' pictures on May first to fifth inclusive and there will be separate classes to accommodate hand-colored photographs and natural-color photographs on both paper and plates.

The Montreal Exhibition

The M. A. A. A. Club's Eleventh Annual Exhibition, held the last week in March, called forth exhibits from many parts of Canada and the United States, the artistic quality of the work submitted being most gratifying. William Brymner, President of the Royal Canadian Academy, with Sidney Carter, and T. H. Dupras, acted as judges. The one hundred and eighty-six pictures were

divided into five classes, Portraiture, Landscape, Waterscape, Architecture, and Genre, a silver and bronze medal being awarded in each class. The two winning first and second prizes in each of the five classes respectively were as follows: W. G. Fitz and T. W. Kilmer, W. H. Rabe and C. W. Christiansen, Albert Kelly and W. G. Fitz, O. L. Griffith and W. H. Rabe, and, W. G. Fitz and O. L. Griffith. Of the California workers, Messrs. Doolittle, Edwards, Herrick, Nickey, Kales, Rabe, and Stephens were represented by a total of fifty-five prints; almost thirty per cent of the total accepted.

Rendition of Color Value

At the meeting of the Southern California Camera Club in its quarters in the Lyceum Theater Building, Los Angeles, Thursday, evening, February eighth, it was arranged to have a club outing in the near future to one of the near-by beaches in order to secure marine subjects for the coming monthly print competition, and recreation as well. A magazine article on the use of orthochromatic plates was read by Mr. Mansfield and a general discussion of the subject of color rendition in photography, followed. Prints by Mr. Hall exemplified the use of ordinary orthochromatic plates on a vari-colored subject, and others showing different color rendition on orthochromatic plates, used with and without filters, were shown. In one instance, the dark blue letters of a poster were rendered as a very light gray, while the yellow background was shown as a rather dark gray, an orthochromatic plate being used without a filter. Another example showed the results secured on the same plate used with a five-times filter, more nearly correct color value being achieved, the blue letters being dark, while the yellow background was relatively light. It was also explained why literally true color rendition is not always desirable and how different colors can be emphasized or subdued by the use of a combination of suitable ray screens and the proper orthochromatic or panchromatic plates.

OUR BOOK SHELVES

"Photograms of the Year 1916"

This handsome annual, the twenty-second yearly issue, reaches our desk quite late this time, but it upholds its reputation as a pictorial record of the best in photography for the year just past. As heretofore, the book is very well illustrated and exceedingly well printed; and, the pictures reproduced show that a most discriminating taste was responsible for their selection. Many of the illustrations are reproductions of pictures by our American workers and this gives the volume an added interest, if such be needed. Comment and discussion on the pictures is indulged in to a certain extent, so that the informative element is not overlooked. Tennant and Ward, publishers, 103 Park Avenue, New York, are American agents for the book, which can be obtained locally from Hirsch & Kaiser, 218 Post Street, San Francisco. The price in paper covers is one dollar and twenty-five cents and cloth boards one dollar and seventy-five cents, postpaid in both cases.

Photographic Apparatus Made At Home

This new issue, No. 158, of *The Photo-Miniature* represents a decided departure, one intended for that increasing army of amateurs who like to make their own conveniences or repair or improve their own apparatus. It gives selected working methods and diagrams for, among other things, transforming a Brownie into an all around speed work hand-camera by adding an f-4 lens, shutter and finder; for making a wire frame direct vision view-finder; various forms of lens shade; bellows for cameras or enlargers; fixed focus enlarging box; three-focus enlarger; fitting up enlarging room; making bolting-silk frame; simple actinometer; improved tripod head; cement sink; double tray; electric printing box; a lantern slide making camera and a nigrostyle for working up negatives and enlargements. The diagrams amply illustrate the working instructions. Price only twenty-five cents. Obtainable from nearly all dealers or direct from the publishers, Tennant & Ward, 103 Park Avenue, New York.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

M. P. Kirkpatrick, chief operator for the Bushnell Studio, Seattle, recently entertained a number of friends at his home on Mt. Baker, seven miles from Seattle.

F. A. Held of Chicago is now manager of the Northwestern Photo Supply Company, Seattle.

Frank Nowell, the Alaska photographer, has opened a store and commercial studio in Seattle.

The Anderson Photo Supply Company of Seattle have opened a branch at 1518 Westlake Avenue, same city. They now carry the Ansco as well as the Eastman Kodak Company line.

The Northwestern Photo Supply Company of Seattle will move to its new Fourth Avenue location about May first.

Hirsch & Kaiser of San Francisco, report a large business throughout the coast territory in Mandorville oil colors.

E. O. Webb of San Jose, has built a two-story finishing plant, 30x40 feet, on his property at Second and Empire Streets.

C. A. Bowser is manager of the Kodak Department at the Emporium, San Francisco. Miss A. Walker is his assistant.

Miss Hilda Russell of the MacDonald Apartments, Los Angeles, is doing some fine work in oil colors for the trade in that section.

Premo Richardson has been doing the northwest the last few weeks.

The Oregon Camera Club of Portland entertained the writer March thirtieth, at its handsome new club rooms in the Elks' Building. The membership is growing rapidly, the rooms are well equipped and the enthusiasm seems to be most gratifying.

Jack Dietrich In Town

He must have been one of our Petaluma subscribers because he said something about "old roosters catching young chickens" or something of the kind, and our subscribers from up that way get poultry lore and photographic lingo mixed when they try to tell us anything. What he was reporting was the fact that Jack Dietrich and his wife spent a few days in town recently, the visit being an incident in a bridal tour of the Coast. Mr. Dietrich, was for many years with the Cramer people and later with the Morrison Studio in Chicago, where "Jack," as he is popularly known, has a host of friends and acquaintances.

Commercial Artists' Association

The Commercial Artists' Association of the Bay Cities is a newly organized body that includes in its membership list nearly all of the best known workers in this section. As an opportunity for much that is mutually beneficial is presented by this getting together of those doing designing and illustrating for commercial purposes, this new association should have the support of all the artists engaged in this line of work. Will White, the designer of our own cover, is the Secretary-Treasurer, the President being Sidney Armer of 417 Montgomery Street, this city.

An Announcement

We desire to announce the retirement of an official and employee of our company of Mr. F. Ernest Cramer.

Our friends and patrons may rest assured that the severance of Mr. F. Ernest Cramer's relations with this company will not from any conceivable point of view have the slightest effect upon our business. Our emulsion and mechanical departments have, for several years, been wholly and solely under the management of our Mr. Emile R. Cramer, ably assisted by our Mr. A. L. Milentz, and our sales department in the entire and sole discharge of our Mr. G. A. Cramer. All of these officers and employees will remain in the active service of the company thereby making certain that the same high standard of quality and service as heretofore will be maintained.

With our most sincere thanks for all past favors, and earnestly soliciting a continuance thereof, we beg to remain,

G. Cramer Dry Plate Co.

St. Louis, Mo., March 31, 1917.

Rexo Camera's Advantages

We have received a handsome little booklet that features the various points of merit incorporated in the Rexo line of cameras and as these are most interesting to the users of hand cameras and particularly those who may be contemplating investing in a new camera, we would suggest that the reader secure a copy. These will be gladly sent to any reader who will write for it, addressing Burke & James, Incorporated, 240 East Ontario Street, Chicago, Illinois. In writing you might also ask for an amateur catalogue if you have not already received one. As the book is very interesting, particularly as it contains a number of reproductions of some very good pictures, we would advise our readers to send for it at once.

A New Developer

The world was startled by the advent of the military "Tank" and its mission of destructive advance. The photographic "Tank" is in its own field of utility equally effective and its mission of peaceful penetration has been materially aided by the introduction of "Tabloid," "Tancol," a developer which is the result of the investigations undertaken by Burroughs Wellcome & Company, into the special conditions underlying the problem of tank development.

"Tabloid Tancol" Developer gives what is known as "pyro quality," but it is much better suited to the development of snapshots than the ordinary pyro developers, particularly in bringing out shadow detail before the high lights become too dense. It suits all kinds of roll films, flat films and plates and can be used with the greatest convenience and success in any make of developing tank or machine. If desired, it may be used for tray development with equally fine results. Like all "Tabloid" photographic products, it is compact and portable and keeps indefinitely in all climates, a recent report speaks of the production of two perfect negatives with "Tabloid" developer known to be thirteen years old. The time table furnished by the makers enables the most convenient strength of solution to be selected, for the capacity of the tank in use, and the actual development time noted according to the temperature of the solution and the kind of plate or film in use.

The outstanding quality in the negatives which "Tabloid" "Tancol" produces would entitle the introduction of this developer in peace time to be considered a noteworthy event in the photographic world, but during the turmoil of present conditions is a remarkable tribute to the enterprise of Burroughs Wellcome & Company. "Tabloid" "Tancol" is sold in cartons each of which contains material sufficient for the preparation of eighty-eight ounces of normal solution.

In New Quarters

Lasky's, the popular photographic and optical dealers of 814 and 816 Market Street, this city, have leased a larger store, about one hundred feet above their present location, 832 Market Street, that is being handsomely refitted for their early occupancy. With a larger store and an even more desirable location than their present one, their ever increasing business will be handled with greater efficiency and their customers better pleased, if that be possible. The new store will be occupied just as soon as alterations are complete, supposedly about the time this reaches the hands of our readers.

The Auto-Fixt Focus Camera

This exceptionally fine, little pocket camera is enjoying increased popularity, and the new prices of forty and fifty dollars is certainly meeting with the approval of the purchasers. This camera is now being equipped with the well known Wollensak Velostigmat lenses in two speeds which adds materially to its popularity. As the reader no doubt knows, this camera embodies a very simple mechanism which permits of the quickest possible setting of the focus before the camera is opened, and furthermore, as the camera is opened, the front moves automatically to the desired point where it locks. Room does not permit our going into detail as to all the desirable features of this new camera, but the reader is advised to write for a descriptive booklet being sent out by the manufacturers, Herbert & Huesgen Company, 18 East Forty-second Street, New York.

F. Ernest Cramer Makes a Change

On March thirty-first, F. Ernest Cramer severed his connections with the G. Cramer Dry Plate Company of St. Louis, to assume the Presidency and General Management of the Central Dry Plate Company of the same city. With his long experience in the manufacture and marketing of dry plates, Mr. Cramer will, beyond doubt, make for his new firm a place in the industry that will be of no small importance. His host of friends in the trade will join us, we know, in wishing him all success.

The Clanbury Lens

Such of our readers as are interested in a good anastigmat lens at a reasonable price should investigate the merits of the Eurynar and Clanbury lenses manufactured by Optische Anstalt G. Rodenstock, and sold in this country by W. J. Lafbury Company, 305 N. Fifth Avenue, Chicago. The Clanbury is a three-glass non-symmetrical anastigmat, working at f-4.5, making them especially adaptable to all classes of high speed photography. They are handsomely finished and mounted, the work being characteristic of the factory turning them out, this latter being one of the largest of the foreign optical firms. A request made to the agent, as above will bring information concerning this line and intended purchasers of a new lens should investigate their merits.

Illinois College of Photography

A number of the students attended the Eastman Schools of Professional Photography, held during the month of March, in St. Louis and Chicago. While in the former city, they enjoyed a trip through one of the large dry plate factories.

Several of the students are planning to take the Civil Service examination for Photographers, and are employing their time to good advantage in preparing for the test. One former I. C. P is holding an exceptionally good position as photographer with the Government.

Mr. Bissell, who is one of the State Directors of the Illinois Highway Improvement Association, attended its meetings at the State Capital last month. Mr Bissell assisted in the boosting for a sixty-million-dollar bond issue to be passed at this session of the Legislature. This will give Illinois four thousand more miles of hard roads.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24th, 1912, for April 1st, 1917, of CAMERA CRAFT, published monthly at San Francisco, State of California, County of San Francisco.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Fayette J. Clute, who, having been duly sworn according to law, deposes and says that he is the Editor of the CAMERA CRAFT and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

Publisher, Camera Craft Publishing Company, San Francisco, California; Editor, Fayette J. Clute, San Francisco, California; Managing Editor, Fayette J. Clute, San Francisco, California; Business Manager, Fayette J. Clute, San Francisco, California. That the owners are Camera Craft Publishing Company, San Francisco, California; Harriette E. Clute, Trustee, Hanford, California; Romaine F. Clute and Clifford H. Clute, Beneficiaries, Mountain View, California.

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(Signed) FAYETTE J. CLUTE, Editor.

Sworn to and subscribed before me this twenty-second day of March, 1917.

SID J. PALMER, Notary Public, in and for the City and County of San Francisco, State of California. My commission expires December thirty-first, 1918.

XIV No. 6 JUNE, 1917 Price, 10 Cents

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CAMERA CRAFT

A Photographic Monthly

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THE LETTER
By CHAS. L. SNYDER

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV JUNE, 1917 No. 6

Giving the Print a Border

By Charles A. Harris

With Illustrations by the Author

What to do with his picture treasures is a problem that the amateur generally solves with the assistance of an album. How he may add to the attractiveness and individuality of a collection of prints intended for that or any other purpose is to be considered in what follows.

The usual kodak print, made by contact, is no larger than the negative, not infrequently smaller where trimming is advisable, and usually finished with a narrow white border. This article will be a plea for the use of paper somewhat larger than the negative, thus adding a more or less liberal margin that in many cases will greatly increase the effectiveness of the picture, giving it a distinction not possessed by the ordinary print. The difference is somewhat the same as between a mounted and unmounted picture. The margin so gained may be treated in different ways; it can be left plain in the natural tint of the paper used, it can be given additionally a plate mark or countersunk center or, again, an embossing tool may be used around the outer edges. Prints of this kind may also be finished with an engraving or etching effect by vignetting instead of masking in the printing, the vignetting mask being attached to the outside of the printing frame instead of being placed between the paper and negative.

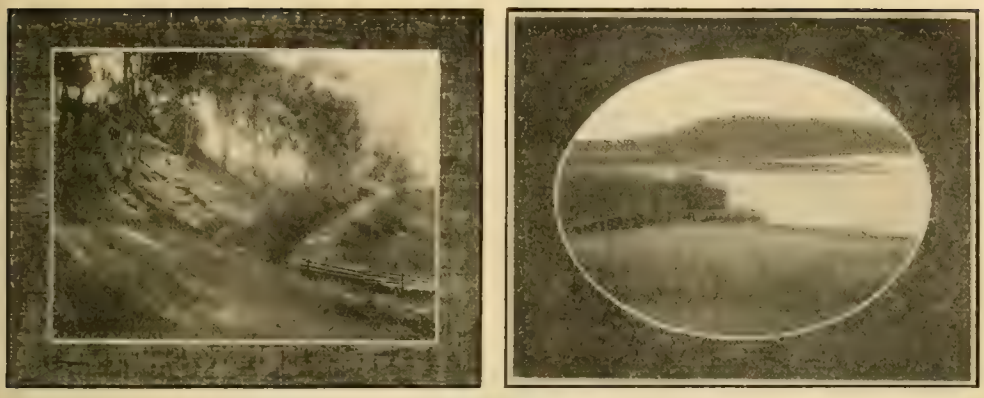
While the plain wide margin is an improvement, a printed border is often more effective. Preparing the negatives for such borders, as well as the printing therefrom, is the subject matter to receive our attention at this time. A public speaker sometimes concludes his discourse with, "I thank you", and it might be appropriate for us to begin, rather than end, with some sort of a gesture and so make it different. This work will, I have no doubt, prove quite interesting because

of the results obtainable, and it will also prove excellent practice along the line of copying.

The materials suitable as subjects for these photographic borders are varied and practically unlimited, but they should be selected with some regard for the object sought. A plain shaded border like the one shown will be very suitable for most subjects, but when going in for the more decorative, the finished results should be somewhat subdued, not too pronounced in design or conspicuous, otherwise the picture itself may be forced into a secondary place. To me, a more or less sketchy effect seems most desirable, and those serving for our illustrations may be considered as at least affording suggestions for a beginning. For the originals required, one has only to look at the window displays of the shops carrying draperies and upholstery goods, or in those dealing in wall papers, to find a multitude of artistic patterns. Many suitable materials of this kind in a variety

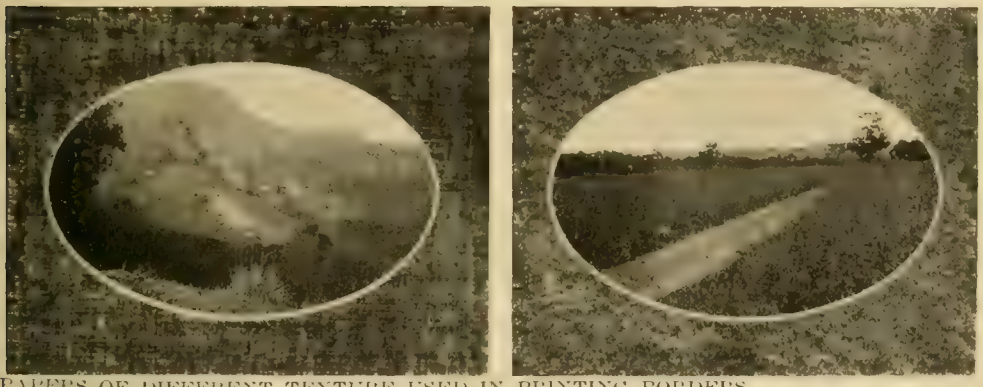
of forms, can be found right at home. When the hunt begins the interest grows upon one. For example, a piece of wood showing a desirable grain, the bark of some tree trunks, a surface of dressed stone, a bit of reed or rattan basket work, fancy paper stock, rugs, and endless other things. Only recently I saw a blanket in zigzag Indian pattern that might look well.

A subject selected, it is quite important that it be evenly illuminated while being photographed, and it may be necessary, in copying very large surfaces such as rugs and the like to do the work out of doors if a portrait studio is not available. It should be remembered, when making the negative, that the size of the pattern or design must be smaller on the ground-glass than usual if a subsequent enlargement is contemplated. That is, scale the size to produce what is wanted in the finished result. Another form of border is produced by using certain makes of heavy white paper as negatives, the grain or texture printing the border, as shown in examples herewith. When selecting a paper for this purpose it is well to see that its opacity appears uniformly distributed when examined by transmitted light.



BORDERS PRINTED THROUGH A WOVE AND A LAID PAPER

otherwise objectionable light and dark patches will result. By carefully inspecting a number of sheets, a satisfactory one is generally found. For a first shot one



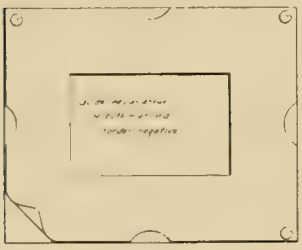
PAPERS OF DIFFERENT TEXTURE USED IN PRINTING BORDERS

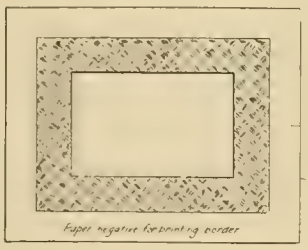
might try Whatman's heaviest drawing paper, particularly as this is well adapted to water-color work.

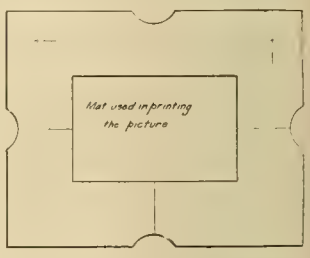
BORDERS PRINTED THROUGH PAPER—The first shows white band around print, made by painting in India ink as described. The other shows effect of using two shades of paper with opaque mask around outer edge. Black line around both has been added by the engraver

With a black water-color, India ink rubbed up, one can easily produce line borders or, possessed of the requisite skill any sort of scroll or fancy design he may think suitable for use as a border. In making a white line border, I first indicate the corners with dots; and then, with these as guides, rule parallel lines, the proper distance apart, with a pen and the black water-color, subsequently filling in the narrow space between with the same color on a small sable brush. For a plain line-border or other design to print dark, the process is reversed, the outlined portions being left untouched and the surrounding white paper filled in with the India ink or black water-color.

All the different border negatives, with reference to their outer margins, are made at least as large as the mask used in printing, and the latter should be about three-quarters of an inch larger, each way, than the print to be produced. The last mentioned border negatives, those simply printing the grain of the paper, can, of course, be cut to any desired size. Those produced by means of copying can either be made sufficiently large by using a larger camera, or, if such is not available, quite satisfactory enlarged paper negatives are easily produced. First, from the smaller glass or film negative make an enlarged positive by enlarging on single weight bromide paper to the required size, and then from this positive make a paper negative, by contact, for use in the border printing. Any number of these latter, can, of course, be readily made from the same positive and used in a variety

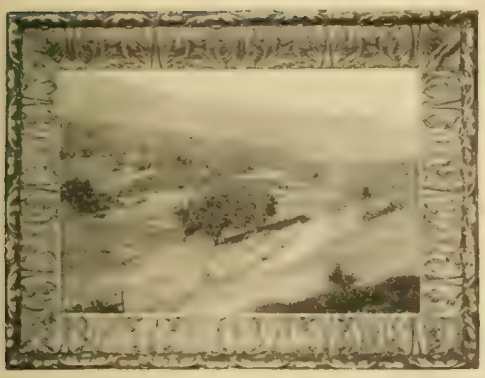


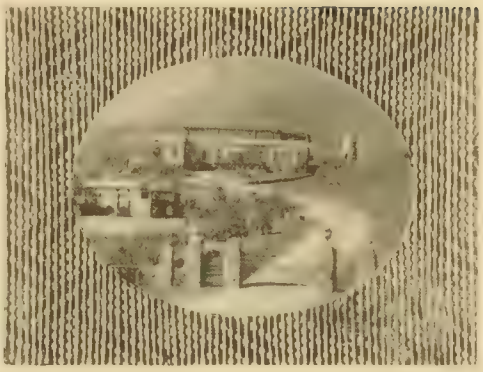




of ways, each shape, size and effect requiring a separate negative. By printing the negatives under a mask cut out to correspond with the size of the print decided upon, a white margin is left upon which to draw the guide lines. Glossy paper will be found best for this process as its smooth surface makes it better adapted to the securing of perfect contact in the printing frame and consequently with little or no loss in definition. It is also possible to increase or reduce contrasts by using the hard or soft working papers and thereby improve upon the original, if this be considered necessary.

If a glass negative is to be used for the border printing, fit it firmly into an opening cut in a larger piece of cardboard of the same thickness to provide for the extra margin that may be required. The final step in the completion of these border printing negatives is the addition of the cut-out centers and the necessary guide lines. To secure good contact between the sensitized paper and the border negative, the cut-out, the paper used for blocking out the centers, should be as thin as practicable and yet be sufficiently opaque to protect the picture proper when printing the border. The kind I use is of a deep red color and almost as thin as ordinary newspaper. Black paper is even more satisfactory. When printing under a mask there seems to be no difficulty in this matter of contact near the edge.





but in printing under the cut-out, loss of definition around the edge is noticeable if the above precaution is not observed. When the border negative is made in the form of an enlarged paper negative, or in case the original is to be provided full border size, one can, if preferred, secure this opaque center by simply exposing the plate or paper, before developing under the mask to be used.

Continuing with our story, the paper negative is first laid upon a table or flat board and the sheet for the opaque center fastened in position with a dab of paste at the center only. The mask, previously prepared, is now placed on top and the sheets fastened to the board with thumb tacks or pins at the extreme corners. The guide lines can now be drawn through the center each way and by reference to the drawing herewith it will be seen how by notching the edges of the mask, these lines are indicated upon both sheets. Use a moderately sharp pencil and reasonable care in the matter of accuracy in all these operations. That the guide lines may be plainly seen in the yellow or orange light under which the mask will later be used, these should be of some light color or shade or in case a line must be drawn over a dark surface, first paste to the latter a narrow strip of

BORDERS PRINTED FROM GLASS NEGATIVES—Made by photographing woven material and other wall covering, the center cut-outs being made opaque by exposing behind a mask before developing

white paper, the line being drawn upon this. Next, following around the opening in the mask with the pencil, outline it upon the opaque center.

At this stage it is well to number, in duplicate, the top edge of both the mask and the negative sheet; these marks serving the purpose of indicating the upper edges so that the sheets can always be used in the original positions. They also, in the event of there being a number of different sizes and shapes, enable the operator to readily locate the particular mask and negative belonging together. The mask is now removed and, if the picture and border are to blend together, the opaque center is cut to the line shown; but, if a narrow white margin is desired, and this last is generally preferable, the cut is made slightly outside of the line. Cutting out this center I achieve by placing a piece of sheet brass, one of my brass cut-out forms in fact, under the edges of the paper, and then, with a sharp knife, cutting along or just outside the line as above explained. The mask sheet, being pasted only at its center, makes this procedure possible. The four guide lines on the negative sheet should be continued towards the center to the points where they intersect the edges of the sensitized paper when in position for printing, this completing the negative.

So prepared, the process of securing a border by double printing is not at all difficult if some previous miscalculation is not disclosed. The printing frame, fitted with a sheet of clear glass, should be somewhat larger than the mask to be used, to facilitate shifting the latter upon the negative to get the desired picture within the mask opening. If the negative being used is a glass one, take a sheet of cardboard of like thickness, cut to fit the frame; and in its center make an opening for the negative. This provides an even surface for the printing, besides holding the negative in place. The film negative can be secured by simply fastening it to the clear glass with gummed strips.

The negative in position, the mask is laid on top, the printing paper centered upon it, and the short guide lines indicated with pencil thereon. I find that a straight edge made of a strip of cardboard is quite useful for this last. At the same time make a small cross at the upper edge of the paper to assure its being properly replaced. This done, the paper is temporarily removed, the mask adjusted over the negative as desired, the paper carefully replaced according to the guide lines, and the first exposure made. The paper, the mask and the negative are then removed, the border negative, with its cut-out to screen the picture, placed on the glass in the frame with the paper again adjusted in exact register, and the exposure given for the border. A little care and a little experience makes the procedure quite simple and the results secured will at least add to the variety of one's work.

There is a perfect analogy between any good play, poem, or novel and a well-composed picture. They all depend upon the force of some leading character; they all use subordinate characters as the supporters of the hero or heroine; they all sacrifice the less to enhance the brilliancy of the greater. The proper composition of a figure picture, then, requires the superior importance of one person, object, or feature. This feature must be strong enough and prominent enough to rule every other feature in the picture.—JOHN C. VAN DYKE.

The Inability of the Beginner

By Wallace S. Allen

With Illustrations by the Author

Well do I remember my first acute attack of "cameraitis." After being mildly innoculated for some years, violent symptoms of the presence of a serious stage suddenly became evident, and in a most unexpected manner. In a careless moment, one who called himself my friend, prevailed upon me to take his kodak along and thus become the official photographer of a party spending the day in the mountains. The amateur finisher who had loaded the instrument with a roll of film, later delivered a set of excellent prints from the resultant exposures. Convinced that the proficiency thus shown was due to unusual talent on my part, a camera of my own seemed imperative.

The violence of my symptoms and the urgent need of the indicated remedy was explained to my wife. As was to be expected, this was followed by the prompt but ineffectual application of the cold-water cure. Although slightly chilled, an imposing pile of camera catalogues soon accumulated, and with evenings spent in poring over their contents, my temperature gradually rose. A photographic vocabulary was rapidly acquired, which enabled me to meet upon even conversational terms the dealer with whom I began to fraternize. My pocket-book, however, developed a sickly pallor, feeling cold and clammy to the touch.

Myself a victim for many years of the modern industrial demand for speed, anything showing this characteristic had a certain fascination for me—unless, indeed, it was coming my way too fast to be dodged. An enthusiastic amateur friend assured me that the speed of a certain lens enabled it to "take a picture in the dark"—a glowing tribute to an unsuspected and uncanny power the catalogue had failed to reveal. So, somewhat rashly departing from the usual caution of the novice when embarking upon strange waters, I bought an outfit that included one of these fast lenses and a speedy shutter.

When leaving the store with my prize, the genial dealer (they are always genial after dealing a solar-plexus to one's purse) offered a few well-chosen suggestions concerning its manipulation. "Stop down pretty well," said he, "and use a slow shutter speed when working outdoors." This advice was received with derision and the query: "What's the use of having a fast lens if it has to be stopped down?" Armed with this plausible logic, the camera was forthwith given opportunity to show its class and justify my high expectations. Several dozen exposures were made with the diaphram wide-open, and at the shutter's highest speed. Ye gods! Poor, thin, weak negatives many of them out of focus, were the astounding and almost uniform result. Business here for several days of cogitating, ruminating, meditating, and otherwise agitating the good old gray

matter. Was I a victim of misplaced confidence and — perish the thought! — could my fast equipment be overrated?

ENTRANCE FEDERAL BUILDING—DENVER

"All things come to him who waits," according to the Arab proverb, and in time the distasteful idea that my initial success might have been merely a lucky fluke, slowly seeped into the aforesaid gray matter. Finally, the dealer's advice was reluctantly recalled and put into practice. Not so very long after this I began to show my prints; and, by carefully suppressing the failures I minimized the number of alibis which the novice usually offers when exhibiting the products of his skill, or his lack thereof. To paraphrase the epigram of an historical fiddler: Some workers make good pictures, some make bad ones, and the rest cannot make any at all. Having, according to my friends, qualified with marked distinction as an expert of the second class, it seems my duty, in view of the large amount of experience and misinformation I have painfully acquired, to pass some along to you, if perchance you are struggling below me in the mire.

It should not be necessary to take a correspondence course in photography, or burn gallons of midnight oil at its present prohibitive price, to secure passable or even pleasing results with almost any old kind of a camera. The beginner is not ordinarily sufficiently critical,—though his admiring friends are inclined toward indulgence, at least for a while. Without some apparent progress, however, continued effort to excite their interest

CUPID AND PSYCHE—Courtesy Colorado State Museum of Natural History

or admiration, may, of course, in time cause them to register various degrees of displeasure or disgust, and partly to forestall this unpleasant contingency, these lines have been penned.

To begin with, the camera and the eye have no properties in common, excepting only that both have a lens which forms an image, in one case upon the surface of a sensitive film, in the other upon the retina of the eye. Our eyes are, by nature, especially adapted to give the sensation of sight; and, while it is true that this faculty has limitations, its functions continue through a wide range and enormous variations in the intensity of light. On the other hand, the susceptibility of a photographic emulsion to light decreases rapidly as its volume is lessened.

A VALVERDE WINTER SCENE

This emulsion, consisting of various salts of silver held suspended in gelatine, form the artificial retina of the camera. It is sensitive, principally, to that portion of sunlight, (which, although white, is a combination of all colors forming the spectrum) known as the ultra-violet or chemical rays. They are wholly invisible, their vibrations having such an excessive frequency that the retina of the eye is unable to record them. Their presence is often revealed by mysterious chemical changes which take place in many mineral and organic substances when exposed to their action. To their influence is due the common fading of colors, the bleaching of linen, and other more or less well-known and peculiar effects. They are seldom, if ever, isolated, as any visible color may reflect or transmit some portion of them. As is also the case with the visible colors, they are more readily reflected from white, and most completely absorbed by black.

Red, green and yellow (the latter a combination of the first two) are weak in chemical, or, as they are frequently termed, actinic—rays, a deficiency that enables us to conveniently use them for dark-room illumination, which last should be suitable in hue and volume to the color sensibility and "speed" of the emulsion to be handled. That they have some chemical action, however, is shown by the fact that prolonged exposure to the rays produces fog upon any emulsion.

To the beginners' inability to distinguish between the properties of the invisible, but chemical portion of light, and those colored rays which singly or in combination render vision possible, may be charged the bulk of their photographic misfortunes. The eye adapts itself automatically to an extremely dull and dim light that may be almost wholly devoid of chemical quality. The eye can cope with a condition which the camera, with its less flexibility, must meet with lengthy exposures, the length being prohibitive when the light is not sufficiently actinic.

While the visible and invisible portions of light are always found combined, the proportions may and often do, vary to what might, to the tyro, seem an incredible extent. Exposures may be made in what appears to be a good light, one of sufficient volume to show abundant detail, yet the result may be flat and lacking in snap, owing to the preponderance of yellow and red rays. This is a common occurence when the camera is used during the hours of early morning or late afternoon when these non-actinic colors predominate. Under such conditions emulsions especially sensitized for yellow and red must be used to secure satisfactory results. If the reader has, at this point, reached the conclusion intended: that we are able to see things (even though in a dry State) clearly, long after the disappearance of the chemical light necessary to insure success with the camera, my efforts so far have not been in vain.

The eye possesses the faculty of judging only approximately the relative brightness or luminosity of light, but in determining its photographic value, it is practically useless, unless guided by the memory of past experience. This last, a desirable though expensive commodity, is just what we particularly lack. Fortunately, the actinic value of light can be ascertained in several ways, even by the most inexperienced. A test exposure may be made and developed at once, the result being used to determine the length of the next exposure. This method is sometimes used, even by experts, when confronted with exceptional conditions. It is not only inconvenient in the absence of handy developing facilities, but the sought-for accuracy may be lost by possible variations of light between the two exposures.

An exposure meter, using a bit of sensitive paper that darkens upon exposure to the light, answers practically the same purpose. Its use is easily mastered and, once this is done, those beginners who make instantaneous exposures on rainy and cloudy days can at least have the satisfaction of knowing in advance exactly what result they may expect. This, appropriately, is a negative, but not its only virtue. By correctly indicating the time required, the beginner will be shown that many exposures he would otherwise make must be entirely foregone or else made from a tripod or other form of fixed support.

It should be evident that, when so essential but unstable a factor as sunlight continually combats the worker's skill and wastes his good coin of the realm, any

WHERE EVENING SHADOWS FALL

artificial aid which will contribute to the successful certainty of the first and most important operation of all,—the exposure,—is not to be considered as a luxury. Correct or satisfactory exposures depend upon the actinic value of the light, plus its volume or amount, plus the time required to permit of its sufficient chemical action upon the film or plate. The sensitiveness or "speed" of the emulsion is also an important qualifying factor, but as it remains practically the same in any individual brand, it becomes negligible when once its degree is known. The sum of the total influence of these factors must remain constant, if the requirement (correct exposure) is to be fulfilled, though their relative proportions will be found to vary greatly in practice. In addition, the proper co-ordination of this small group of factors, requires consideration of their modifying influence upon each other, and that which may be exerted by the color or character of the subject, its distance from the camera, and the final result aimed at by the worker.

The adjustments of the shutter are intended to correctly regulate the time of exposure, and, in connection with the diaphragm, should be used for that purpose. The element of time though of equal importance, is often entirely ignored by the novice, or undue virtue attached to a "fast" lens, one which will pass an abnormal volume of light. A virtue indeed, as in my own early case, often conspicuous by its absence when too high a shutter-speed prevents the action of chemical light upon the negative. The lens diaphragm is similar in operation to the iris of the eye and it may be used to diminish the volume of light passing through the lens, when the intensity thereof is excessive. Unlike its human prototype after which it was patterned, the lens is capable of focussing sharply on both near and distant objects at the same time, the extent of this capability de-

pending upon its focal length and size of its diaphragm. The exposure time should be doubled as the diaphragm aperture is reduced from one number to the next to compensate for the diminished volume of light. And, as a reduced diaphragm gives increased depth of focus, speed in a lens is a quality of which we can avail ourselves only at the cost of a corresponding loss of depth of field. This loss results from the restrictions imposed by certain unalterable optical laws, to which every lens is subject.

All lenses are of the same speed at similar diaphragm apertures, providing the latter are correctly marked. Two apertures of the same marking showing an actual difference in size, indicate that the two lenses were made to cover different sizes of plates and that they are presumably of different focal lengths. Abnormal speed is a quality intended to be held in reserve for adverse conditions; as, for example, a small volume of illumination or when extremely short exposures are rendered necessary to prevent a blurring of the image by objects in rapid motion. Speed, like the ace, is a good card to have up one's sleeve, but one to be played with discretion. With this brief survey of the subject, or rather that phase which appears to be the beginner's greatest obstacle, our little journey must end. That it may stimulate him, to give more consideration to the fluctuations of this necessary factor is my most sincere desire.

A bit of work of the highest quality is a key to a man's life, because it is the product of that life and it brings to light that which is hidden in the man as truly as the flower lays bare to the sun that which was folded in the seed. What a man does is, therefore, an authentic revelation of what he is and by their works men are fairly and rightly judged.—HAMILTON WRIGHT MABIE.

"PRUNES, 'COTS AND PROSPERITY" By EDWARD LAROCQUE TINKER

Photographing the Butterflies

By John Bieseman

With Illustrations by the Author

It seems to be almost an impossibility to photograph these gay and gaudy creatures, these companions of the flower, these denizens of the air; ever alert to escape our near approach. This child of the sunshine, the butterfly, seems always on the wing, hovering only for an instant as it dips its antennae into one of the myriads of nectar cups so lavishly provided by the flowers of the field. They are also characterized by a frailty of structure, a degree of daintiness, that discourages any unskilled attempt to secure a specimen alive and unblemished as to form. The common method of capturing them with hat and hand, is not at all to be commended when they are wanted as photographic subjects; as, in all probability, more or less mutilation will result. It is of the utmost importance that the form be preserved; the wings, feet and feelers should be entire and complete, as these last are the portions that become most easily broken and severed.

A butterfly net is best used for catching them; in fact, is indispensable. One can be made from a light wood rod, about one-half or three-quarters inch diameter and from three to four feet in length, with a piece of wire about forty-six inches long, for the hoop. Commence at the center of this wire and bend to form a circle twelve inches in diameter, with the remaining six inches at both ends left straight but at such an angle that they will be parallel with the handle. Tie or clinch the extreme ends of this wire about four inches from the end of the pole, and then wrap an extra piece of binding wire around the straight portions where they merge into the part bent into hoop form. The net can be made of mosquito-bar, but a much better fabric is the cotton tulle of which bee veils are made, as it is dyed black and therefore less distracting when in use.

TWO COMMON SPECIES
On paper disk and on glass

LIGHT GREEN, BLACK BARRED
Stop f-22, 10 min. exposure

LARGE BLUE BUTTERFLY ON RED CLOVER—Stop f-22, 15 min. exposure, 15 in. from lens

A pattern suitable for the beekeeper's globe veils is sold by the houses dealing in bee supplies, and this can be instantly adapted to the described wire and rod.

In going a-field for butterflies, one should select a location where such plants as the thistle, the ironweed, and the common milkweed grow abundant; as a variety can be found on these blossoms during the daylight hours of warm and sunny days. The most spectacular array of butterflies that the writer ever beheld, was in a field where the second growth of red clover was in blossom. This was during the month of August, and all the varieties native to the locality, could be seen from one point.

Young or bright colored butterflies should be chosen exclusively, as the older ones are more or less faded in color and indistinct in markings, frequently having only fragmentary wings. With a side sweeping motion bring the net over the butterfly and continue the curvature of motion to the ground. Doing this, the net will escape the plant, the upward tendency of the butterfly in rising permitting one to make the capture free of the plant. Place one hand under the net, grasp the butterfly by the thorax with the thumb and first two fingers, and then fasten it to the end of a soft stick, by inserting a pin from above through the back. If the stick be about three feet long, and pointed, it can be stuck upright in the ground for convenience. The most humane method is to carry a vial of carbon disulphide and at once apply to the head and neck with an ordinary sized camel's hair brush; this liquid being very efficacious. One can, if he so desires, deodorize his specimens, upon his return from the field, by swabbing them with a ten per cent solution of bichloride of mercury in alcohol, using the same brush and applying it to the body only. This solution also acts as a preservative.

While the limbs and joints are pliable, the butterflies should be temporarily

fixed with the wings and legs in the desired position or as they appear in nature. This can best be done by using two strips of heavy cardboard, one inch in width and six or more inches in length. These are to be pinned, about an inch apart, upon an upturned cardboard box, thus forming grooves or troughs, an inch in width and depth. In these the butterflies can be placed in an upright position and the wings can be adjusted to any desired angle by altering the distance between the cardboard strips. One should also, during the next several days while the feet, tongue, and feelers are yet pliant, direct them in their natural position, a small pair of forceps or tweezers being used in the manipulations. If one waits until they become dry, these parts may be too brittle for the necessary handling. When the wings remain rigid the specimens are in proper condition to be mounted on their favorite flower to be photographed. The latter must be cut and allowed to stand in wet sand or water for an hour or more before the butterfly is attached, in order to avoid signs of wilting and motion in the plant.

In mounting them on the flower, a life-like pose should be arranged. Use a pin thrust through the thorax from above, imbedding it firmly in the corolla of the flower. The head of the pin should be tinted to match the color of the butterfly; or, should it show, it can be corrected on the negative. The feet should be so arranged that the specimen appears to be clinging to the flower; the feelers should be raised evenly and to their natural position with the tongue in a visible coil or extended to suggest the act of extracting the nectar from the flower.

Instead of mounting them on flowers, they can be attached to the surface of a pane of glass by means of a bit of glue applied to their feet. So mounted in a natural attitude they can be photographed in a vertical or a horizontal posi-

LARGE RED BUTTERFLY—Stop f-16, 15 min. exposure

COMMON RED BUTTERFLY
Stop f-15, 10 min. exposure

YELLOW, BLACK MARGINED
Stop f-22, 10 min. exposure

tion, or inclined at any angle. The last two positions will of course not permit of as small a stop being used as will the first or vertical one.

The double coated orthochromatic plate and a three-times filter should be used exclusively. It is best to place the camera near enough to obtain a large image, and yet far enough away to secure the entire subject in sharp focus, although definition can be greatly increased by using a small diaphragm. An ample exposure should be given in order to obtain full detail and color value, as a thin negative will not give one these desired essentials. The exposures can be made indoors near a window, and the subject should be well lighted with no breeze admitted to cause motion. Reflectors will generally be found necessary to equalize the lighting.

White cardboard backgrounds are most suitable for dark and medium shaded varieties of butterflies, and also for the lighter hued ones that have their wings margined with a darker color. Should the feet and body of the latter variety be of a light tone as is sometimes the case, it will be necessary to so arrange the subject that these portions are shown against the darker tones of the flower or leaf. The plain white and yellow varieties are best displayed against a black or dark background. Those of a reddish hue are well portrayed in prints that have been sepia toned, while the blue ones make good subjects for blue toning.

Which Is the Best Plate?

"A Dollar's Worth of Advice"

With Illustrations by the Author

One of my correspondents sends me a dollar to tell him which is the best plate. Up to this time my correspondent has used films exclusively. He has successfully mastered the rudiments, and knows how to take good straightforward photographs. He feels, however, that he may be able to accomplish some things more readily with plates than with film.

"Dear Mr. H.————————:

"There is no 'best plate!' If you were to ask me to recommend to you one plate to be used exclusively for all sorts of photography, I should advise you to stick to film. I know of no plate which is better than film for all around use, nor even as good. That is just what film is intended for, and its makers have succeeded admirably in making what they set out to make.

"For special purposes, however, plates are made that are superior to film. That is the great advantage of plates, that they are made in various grades and qualities for certain specific purposes.

"For instance, you complain that your photographs do not show the clouds in contrast to the sky as you believe they should. What you need for that is

GOLDENROD GIRL—Deep yellow filter used to bring out white hat against blue sky-reflection, and to show goldenrod light in tone. Cramer Instantaneous Iso plate, one second, f-5.4, very bright light, sun almost out. Developed in duratol-hydro. Cyko print

UNDER SUMMER SKIES—Blue of sky and water contrasted quite effectively with white sail and clouds. Eastman film, Burke & James Ideal filter, one-twenty-fifth second, f-6.3. Developed with duratol-hydro. Print on Instanto

an orthochromatic plate and a ray filter. The orthochromatic plate is more sensitive to yellow than the ordinary plate which is not orthochromatic, and more so even than film which is slightly orthochromatic. The ray filter is a yellow glass which fits on over the lens. Its purpose is to filter out or deaden some of the blue rays, and the resulting photograph will render the blue sky dark enough in tone so that the white clouds will contrast with it. Could not a ray filter be used with film for cloud effects, you ask? Most assuredly, and often with very satisfactory results, too. In fact, a special filter is put out by the makers of film to be so used. But an orthochromatic plate will do the work better and quicker, even with that very ray filter that is specially made to be used with film. With an orthochromatic plate, moreover, one may employ a ray filter of a much deeper yellow, and thus get more pronounced color rendering than would be feasible with film.

"Speed work can be done very well with film. But there are specially sensitive plates that are much faster than film, and their advantage over film for this particular purpose is self-evident. When I first got a focal-plane shutter and tried my hand on mile-a-minute express trains, racing motor cars and the like, I was using for all purposes a fast orthochromatic plate. So I went right ahead and used the same plate for speed work. And I had fair success with it. But I found out later that I could do better with a plate which was not color-sensitive, even though it wasn't much or any faster than the orthochromatic plate, because it would, in extreme cases, stand under-exposure and forced development better. Now film is a sort of compromise in this regard. Film will stand under-exposure and forced development better than an orthochromatic plate but not so well as a plain, non-orthochromatic plate.

THE ROAD THROUGH THE VALLEY

"Likewise there are other photographic operations for which all-around material such as film will answer very well, but not so well as the special plate made just for that particular purpose. Copying, for instance, is best accomplished by a special fine grain, low speed, density giving plate. Making of lantern slides demands very similar qualities. An experienced photographer might be able to make a good lantern slide on a fast portrait plate, but he wouldn't do it from choice, because a better result could be secured, and more easily, by using a lantern slide plate.

"You see when you begin to use plates and use them intelligently, selecting the particular plate for the particular purpose for which it is intended, you become a specialist. It will be a step forward for you in your photographic development, and I can see that you have interesting times ahead.

"You will not have quite such plain sailing, however, as you have had with your faithful film, because different plates act differently in their development as well as in other characteristics. You have been accustomed to developing film in the tank. A certain duration of development with a certain strength of solution at a certain temperature you have come to know may be depended upon to give a certain degree of contrast in the negative. You might do the same with as much certainty if all your plates were of the same brand, but it wouldn't do for you to develop plain and ortho and high-speed plates together in the tank for the same length of time, because various sorts of plates differ greatly in the speed with which they develop. I will not attempt to go very fully into the matter of development speeds, but would recommend that you get the little booklet or chart on 'Thermo Development,' published by the American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts. It costs only a quarter, but is worth much more.

"As you are interested in getting cloud effects, perhaps you may as well start your plate experience with an orthochromatic plate. It doesn't matter very much what particular brand, only I would advise a fast plate. The Cramer Instantaneous Iso is good, so is the Standard Orthonon and the Seed L Ortho. They are all about the same speed, a little slower than film; and they all develop more quickly than film. You may be able to buy a ray filter specially made for the plate you choose. The Cramer people have filters adjusted to their plates. But any pale yellow filter made by a reputable house will answer your purpose to start with. The Ingento filters made by Burke & James are reliable, so is the Kodak filter of the Eastman Company.

"Clouds and skies are not the only things that you will find are better rendered by an ortho plate with a ray filter, but almost every subject which has full bright colors will be more truthfully depicted with the color-sensitive plate and filter. You must have noticed that the usual photograph shows blue as much lighter in tone than it looks to the eye, and yellow very much darker. This state of affairs is more or less corrected by the ortho plate and filter. These two colors, blue and yellow, with their many shades and combinations, figure prominently in almost every landscape, from early spring to late autumn. So you can readily see what a revolutionary step you are taking, if you go in very much for landscape photography.

"Perhaps I have told you enough for the present. I don't want to say so much that you will be puzzled instead of helped. Go ahead and get the ortho plates and ray filter and use them in making a few photographs. Then let me hear from you again. I believe it is best always to 'learn by doing' if possible, but if you strike some snags don't hesitate to call on me, and I will do my best to help you over the rough places.

"Very truly,

(Signed) "CHARLES F. RICE.

"Mamaroneck, N. Y., June 2, 1917."

An Exposure Determining Device

By Harry L. Ide

With an Illustration by the Author

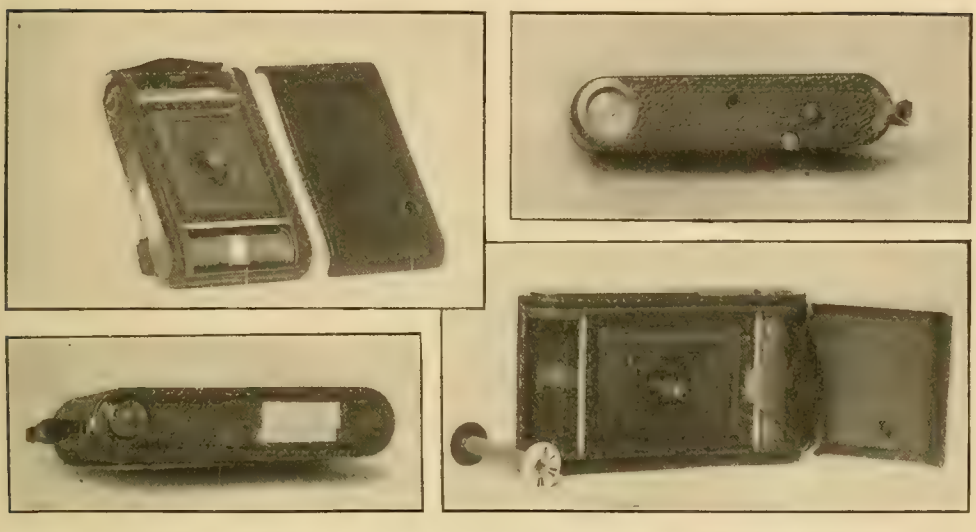
As we all know, the actinic value of daylight varies greatly, not only with the weather conditions but with the hour, the month, the latitude, and to a certain extent with the elevation.

I have frequently noticed that on a bright summer day when it took three or four seconds exposure of the testing paper to match the permanent tint, sudden change in the weather, perhaps to rain with dark clouds coming up, lengthened the exposure to thirty or forty seconds. Amateurs accustomed to taking pictures in Central states, on making a trip to the Coast where an entirely different light exists, return home with complete failures.

I have recently been granted letters patent on a device, easily adaptable to the Kodak and like forms of cameras, intended to overcome this difficulty of determining the correct exposure. It consists of a disc of specially prepared bromide paper, cemented to the metal end of the film spool, which, upon exposure to the light, prints to a decided green tint to match a permanent color tint provided upon the outer or exposed portion.

The number of seconds required to bring a section of this sensitive paper to a tint matching the permanent one, gives the user the "light value"; and, with this figure and a simple slide rule attached to the camera, the correct exposure for all classes of subject is at once determined. The photographs reproduced herewith show a camera fitted with my device. The first shows the camera with the spool inserted in place in the magazine, the testing portion on the end of the spool being protected by a metal clip. This last, which enables one to insert the spool in the camera in bright light, is removed as the back is put on. The next shows the camera closed ready for use with the opening uncovered and exposing a section of the testing paper on the spool end in order to take the light value. The lower left picture shows the computing slide rule on the side of the camera, and the last shows the appearance of the sensitive disk on the end of the empty spool where the tests were made. In exposing the paper through the slit, the user should stand so that direct sunlight does not enter the opening; the latter being in the shade of his body.

To illustrate the simplicity of the procedure: Expose and count seconds thus, "one thousand and one", "one thousand and two", "one thousand and three", finding the light value to be three seconds. Turning to the slide rule, the subject being a scene on the beach, one moves the narrow numbered rule on the right until the figure three is opposite "Beach Scene" on the other strip, when, in this position looking down to f-16, the stop to be used, one finds the figure $^{1}/_{25}$ opposite. This gives you the correct exposure and one has only to set his shutter at $^{1}/_{25}$ of a second for correct exposure of the film. If one wishes



to use a larger stop, he has only to read opposite, let us say, f-8 and the correct exposure will be found to be one-three-hundredth of a second, for the same subject. If, instead of a "Beach Scene" the subject to be photographed were a "Dark Street Scene" and the count or light value six seconds, one would set the figure six on the narrow numbered scale opposite "Dark Street Scene" and then, opposite stop f-6.3 he would find an exposure of $^1/_{50}$ of a second indicated. Suppose, for an illustration, it be late in the afternoon or towards evening with a light value of thirty-two seconds, and one wanted to take a group in the shade, using full opening of the lens or f-6.3. The figure thirty-two, opposite "Groups in Shade", would bring the figure $^1/_5$ opposite f-6.3, indicating an exposure of one-fifth of a second.

I have shown a model of this device to a number of dealers and amateurs in different cities and they all speak enthusiastically of it. The time is ripe, I feel quite sure, for a device of this kind, as the great difficulty that amateurs experience is in estimating the right exposures. Some of the photographic journals are publishing tables, varying for each month of the year. While these serve as a help or guide, they do not have the exactness secured by an actual test of the light. *The Scientific American* has accepted my illustrations and will describe the device in an early issue.

The Smile

Nothing on earth can smile but man. Gems may flash reflected light, but what is a diamond flash compared to an eye-flash and a mirth-flash? Flowers cannot smile; this is a charm that even they cannot claim. It is the prerogative of man; it is the color which love wears, and cheerfulness and joy—these three. It is a light in the windows of the face, by which the heart signifies it is at home and waiting. A face that cannot smile is like a bud that cannot blossom, and dries upon the stalk. Laughter is day, and sobriety is night, and a smile is the twilight that hovers gently between both—more bewitching than either.—HENRY WARD BEECHER.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

KEEPING NEGATIVES PRINTED UP: I have a box in which I immediately put all negatives from which prints are promised or wanted, together with a slip showing how many, if more than one. This saves me much disappointment through forgetting when I come to make prints as I do only at intervals.—Russell Waldo, Indiana.

A GOOD DEVELOPER FOR SHORT EXPOSURES: This developer is excellent for fast shutter or other very short exposures if fresh solutions are used:

A.	Water	16 ounces.
	Pyro	1 ounce.
	Oxalic acid	10 grains.
B.	Water	16 ounces.
	Sulphite of soda anhydrous	2 ounces.
C.	Water	16 ounces.
	Carbonate of soda anhydrous	2 ounces.

To use take one ounce of A, four ounces of B, and four ounces of C, no additional water. For use with Seed's, Hammer's, and Cramer's Crown or Banner, use as above, but for Stanley, Standard and Cramer's Iso or Isonon, add four minims of saturated solution of bromide of potassium.—L. C. B., Indiana.

AN IMPROVISED COLOR SCREEN: Wishing to photograph a geological formation in a cut made by a steam shovel in some mining operations, I required a color screen, something that my outfit did not happen to boast. The camp store carried no photographic supplies and time did not permit of sending away. The only promising material at hand was some Higgins' Yellow Drawing Ink and this was tried with the most satisfactory results. An unexposed plate was fixed out, well washed, and then immersed in a bath made by adding one part of the ink to three parts of water. It is obvious that certain plate emulsions will take up more of the color than others, and different fixing baths may influence as well. As a rough guide to the necessary increase of exposure, I should judge, from my experience, that five drops of the ink to an ounce of water would give a screen requiring an increase of about fifty per cent in the exposure, while a bath made up of half ink and half water would result in a twenty-time screen, intermediate strengths requiring intermediate increases in the time given. These screens give surprisingly fine results and the color secured is uniform and permanent.—George L. Holmes, California.

The highest expression is to show to others what we possess. Art, whether it lasts for the five minutes or for a thousand years, is the unfolding of personality.—S. S. Curry.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, June, 1917 No. 6

Answering Queries

For the benefit of our new subscribers we would call attention to the fact that while we do not conduct a print criticism department or one devoted exclusively to the answering of questions; we do, each day, write several letters in reply to readers who have photographic questions to ask or prints that they wish criticised. The reader who wants help over some photographic difficulty does not care to wait until the next following issue of the magazine comes out; and, as a rule, the criticism of a print has little of interest to other than the maker of that particular print. Where a query involves an answer that we think may be of general interest the reply is not only sent on to the inquirer but is made the topic of a paragraph in our "The Amateur and His Troubles" department, as room permits. When it comes to offering criticisms of prints, this using of the same material in our pages is even less practical. From the prints sent in, as well as from the letters accompanying them, it is not hard to judge very closely what is wanted in each particular case. One set of prints may be from a tyro who is yet in that stage in which the technique of negative and print making is of the most importance; the next may be from one a little further advanced but not yet quite above elementary advice as to composition, while the third is perhaps from a worker quite well along on the road to salon honors. One worker wishes to produce prints that will best serve his purpose as records, another wants his prints to make as strong an appeal as possible to the calendar manufacturer, while the fourth may desire to secure the best obtainable results in some technical field. One correspondent wants constructive criticism of his efforts, the other wishes only the faults pointed out; and so on through a wide field. To print, side by side, our efforts to help these various workers, without going into undesirable and involved explanation, would result in a few rather disappointing pages of reading matter. On the other hand, to make all the criticisms uniform, make all on the same dead level, make all cover the same specific points, would result, if printed, in a department quite consistent and informative—to a limited number of readers having similar aims and like advancement. And such criticisms would be, in all except these cases, hardly what was desired by the individual workers sending in the prints. We have gone to this length to explain why our pages do not carry an "Answers" or a "Criticism" department, because we find readers assuming that such lack indicates a disinclination on our part to answer queries or criticise prints sent us by our readers. The truth of the matter is that our desire to give the best possible service in this direction is the real reason why we do not maintain such departments, and instead, give our readers' inquiries individual attention by mail. We believe that so doing saves valuable space and pleases our readers as well.

The New Catalogues

The season's catalogues are practically all out and the worker who wishes to keep abreast of the field should supply himself with those that he feels will interest. While we would not advise sending for them simply out of idle curiosity, there is much in these catalogues to interest even the man who has no intention of immediately adding to his equipment. The illustrations when such are used, are invariably good examples of photography, well worth study and consideration. Not infrequently a lot of good advice is afforded along the lines of practical work, and tables and the like that have a great value are often included. Just recently we were in the den of a photographic crank and found what appeared to be a very striking little example of the painter's skill occupying a neat gold frame. It seemed quite familiar and closer examination disclosed it as one of the covers of a Kodak catalogue of a year or two ago. There is, of course, no end of color work quite worthy of a frame, but examples having a photographic flavor are not so common, and there is no denying the fine quality of that used for some of our photographic catalogues. Their relatively small size is an advantage; and, framed in gold, close up, they are most effective.

Boosting "Camera Craft" Sales

The illustration herewith was made by one of our local subscribers, and shows how J. F. Brandert, the enterprising proprietor of the Red Feather Store, at 435 Jones Street, this city, calls the attention of the people in his neighborhood to our magazine. The display is quite effective and as Mr. Brandert repeats it frequently, the results are no doubt quite satisfactory. Although the Red Feather Store is not situated in the principal business district, it enjoys an exceptionally fine trade. This is no doubt mainly due to the enterprise displayed by the proprietor in serving his customers to the very best of his ability. The popularity of the Red Feather is assured.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Testing For and Eliminating Hypo

A contributor to one of our contemporaries recently published the results of some useful experiments upon tests for hypo, his conclusion being that potassium permanganate is, perhaps, the best, as it is certainly the most convenient one, for photographers' use. As it also serves as a most efficient hypo-eliminator its usefulness is doubled. Testing for hypo is most useful in the case of prints, especially when there is any doubt as to the efficiency of the washing system. It is no easy matter to arrange a perfect method of washing a number of large prints, which have to be treated in batches, and without a test of some sort we are left very much in the dark as to what is really going on. The testing process is quite simple. Lift a print from the washing water and let a few drops fall from one corner into a test tube, or any convenient vessel filled with water just tinted pink with permanganate. If the print is quite hypo-free no change will take place in the test solution. If hypo is still present the pink color will disappear—instantly if there is much hypo, more slowly if there is only a little. Naturally, if there is very little hypo and a lot of permanganate the test will fail, for some of the color must remain, therefore the test solution should be as weak as possible consistent with the retention of a pink tint. When the result of a test is doubtful it should be repeated with a still weaker solution. A white porcelain vessel is useful for the test, as the color is clearly visible against the white, but the most delicate test is, perhaps, accomplished with the aid of two supplies of test solution, one being simply used for comparison with the other. A very slight change in the one vessel will then be apparent if the used solution is compared with that as yet unused. As some tap water is apt to affect the color we prefer to use distilled water for the test, and to economize this water we use two small test tubes, both filled from the same stock. For stock a crystal of permanganate is dropped into a small bottle of distilled water. For testing, enough water to fill the two tubes is put into a measure, and enough stock permanganate solution added to give a solution of the required color. One drop or so is usually sufficient. The mixture being complete the tubes are filled, one used for the test and the other for comparison. The first effect is generally a change from pink to yellow, and this is enough to show the presence of hypo.

For hypo elimination a similar, but rather stronger solution is used. A few drops of a strong stock permanganate solution can be put into a quart of water, tap water being quite good enough for this purpose. The color in this case should be more than the just perceptible pink which is sufficient for testing purposes. It should be a decided pink, though still a very dilute solution of permanganate. Fill a dish with the solution and put in the plate or print from which the hypo is to be removed. The color will probably all be discharged at once, whereupon the process is repeated until we reach a stage at which the color is no longer discharged. Objections have been raised to this method on the ground that the solution tends to damage the silver image and to stain the film or the paper of a print. No damage can be caused to the image unless the solution is far stronger than it should be, while there will be no staining unless either the solution is so strong as to tint the paper or film with its own color, or there is so much hypo present that decomposition products are thrown down. The process should not be used for eliminating the hypo from a film that has been fixed and merely rinsed, nor even for one that has been only slightly washed; it is adapted only for destroying the last traces of hypo remaining in an image film that has already been through a good washing process. It is not easy to get out

absolutely the last traces of hypo by washing alone; nevertheless, it is very desirable to do so if any after-process likely to be upset by them is to be carried out. There are other solutions as effective as the permanganate for this purpose, one of chrome alum made acid with hydrochloric acid being, perhaps, as useful as any, but there is no need to multiply solutions, and permanganate, if available for testing purposes, can be used equally well for the elimination of hypo, while it can be used with safety at a rather earlier stage than the chrome alum bath.

Another use for permanganate in the same connection is the testing of washing methods. No washing system can be effective if the dish, or whatever vessel be used, contains traces of hypo in solution. Some ineffective methods really resolve themselves into the prolonged soaking of plates or paper in a solution of hypo that gradually grows weaker, but may not vanish altogether for hours. The test is to charge the washer in the ordinary way with plates or prints, waste ones will serve, and then fill it with a good dark colored solution of permanganate. Turn on the water, and note how long it takes for the color to disappear, and also the fashion in which it does go. In some cases it will be found that the color is rapidly washed away from one part of the apparatus, while in others it remains for a very long time. Eddies may be formed, that circulate, but do not get to the outlet in any reasonable time. Such a washing system will give half washed images, liable to local stains that may afterwards be the cause of much bewilderment. Some washers of the elaborate type fail badly under such a test, while the very common method of washing prints in a mass in a dish will give results that may astonish a careless worker. If an employer wishes to impress his printer with the necessity for constant movement of the prints and of personal attention given to the washing, he cannot well devise a more effective proof than this.

It should be remembered that in eliminating hypo, either by water or by chemical means, much depends on the start of the process. If we take a print from the fixer and put it into clean water by far the larger portion of the retained hypo is removed almost at once. If at the end of a minute we transfer the print to a second bath of clean water, the amount of hypo carried over at that second bath is very small compared with that removed by the first bath. The efficiency of simple water as a hypo eliminator is not fully appreciated by a good many photographers. Once, when testing a suggested method of chemical elimination that, it was said, would free a plate from hypo in a few minutes, we put a second plate through precisely the same series of operations, using distilled water instead of the prescribed chemical solutions. On testing the results it was found that the water had done precisely as much work as the other solutions, as the two plates contained exactly equal quantities of hypo. This result was instructive in two ways, for, while it revealed the failure of the proposed process, it showed that water, if used properly, was far more effective than we had previously thought it possibly could be. All washing systems are given a better chance if plates or prints are put through three or four changes of clean water before the washing aparatus is started, while the total time required is much shortened.—*British Journal of Photography.*

Acid Bleachers

In photography one of the most frequent causes of failure is the habit of using solutions of which the composition is doubtful owing to their having been used before. We do not know how much of this or that ingredient has been used up; and, in practice, it may be taken as certain that the best policy in the long run, in all important operations, is to avoid risks, by using fresh solutions wherever possible.

For this reason, the acid bichromate and acid permanganate bleachers possess a great advantage over ferricyanide and bromide, because they are so cheap that there is no temptation to store them and make them serve over and over again. Moreover, they are both to some extent, the permanganate especially, hypo eliminators; so that traces of hypo, which would be fatal in the presence of ferricyanide, may be ignored, particularly when permanganate is used. With bichromate I am uncertain on this point: but have a suspicion that the tone is slightly affected by the presence of hypo.

The bichromate bleacher may vary widely in composition as far as the relative proportions of its ingredients are concerned; but

the most efficient and active combination is made by taking forty minims of a five per cent. solution of potassium bichromate, sixty minims of dilute hydrochloric acid (pure hydrochloric acid, diluted with four times its bulk of water) and adding water to make one ounce. The solution keeps in corked bottles.

With fresh solution bleaching is complete, unless the print is exceptionally deeply printed or strongly alumed, in from one to one and a half minutes, and there is usually a faint image left. Some workers get patchiness, but this I cannot understand; it is a thing which ought never to occur. Failure in bleaching with bichromate is generally due to the yellow stain not being got rid of before sulphiding. By artificial light this stain is easily overlooked; and the result is a yellowness in the final tone, which no subsequent clearing will remove. The stain may be washed out before sulphiding.

The use of an ordinary clearing bath is attended with some risk; but one made as I will describe, which contains hydrochloric acid and not too much sulphite, acts quickly, and may be used with perfect safety. This clearing bath consists of a dram of a twenty-five per cent. solution of sodium sulphite, and a dram and a half of dilute hydrochloric acid, as just mentioned, diluted with water to make four ounces. It should be noted that if a clearing bath containing bisulphite or metabisulphite, or alum, is used, it is necessary to add a certain proportion of common salt to safeguard the image.

The clearing solution just described may be kept in a concentrated form, say four times the strength given above, and then diluted as required. It takes from one to two minutes at most, and should the action not be complete in this time, it may be taken as certain that the clearing bath is used up. It is efficient only so long as it smells distinctly of sulphurous acid. Old solution should not be strengthened or returned to the stock, but thrown away.

After clearing, the prints only require rinsing in about three changes of water, occupying about one minute, before sulphiding. The sulphide solution should be fresh, and of a strength of about two grains to the ounce. To make sure, it is just as well to finish with a second bath of fresh sulphide. The tone is exactly the same as if we used ferricyanide.

The only objection to be raised to bichromate is its poisonous action on the skin; but if prints are bleached singly there is no need to bring the solution in contact with the fingers, so that this objection has no force.

Coming to acid permanganate, an efficient and simple formula is one which can be made up as required from two stock solutions: One a solution of forty grains of potassium permanganate in water to make one pint, and the other pure hydrochloric acid diluted as described above. These solutions keep indefinitely, and the bleacher is made by taking a dram of the first and from fifty to sixty minims of the latter and diluting the mixture to make one ounce.

Bleaching with this takes about one and a half minutes, and a very slight image, if any, is left. The very slight pink stain may be disregarded, and after a rinse in, say, three changes of water, occupying about one minute, the prints may be sulphided direct. In order, however, that the best tone and the purest whites may be ensured, it is necessary, after the sulphide solution has been washed out, to pass the prints through the clearing bath as used for bichromate.

The only objection to permanganate is that the mixed solution will not keep, and that, if bleaching is prolonged, it may become muddy in use. Should this occur, however, no harm is done. All that is necessary is to add a little more stock solution A and continue the bleaching. There will be perhaps more stain, but that is very easily removed in the final clearing bath after sulphiding.

Recently, however, the writer has worked out an acid permanganate which does not suffer from these disabilities, whilst it is quite as active and efficient as the mixture of permanganate and hydrochloric acid. This is also made up from two stock solutions: One composed of forty grains of potassium permanganate in twenty ounces of water, as just described, and the other of two ounces of common salt, and half a fluid ounce of "syrupy phosphoric acid sixty-six per cent. specific gravity 1.5," with water to make twenty ounces.

It is essential that the salt be free from added farina, which is present in some fancy table salts. A salt which yields a clear solution in cold water will be satisfactory.

The working mixture consists of one dram

of A and four drams of B, with water to make one ounce. This quantity is sufficient for a print of about thirty square inches or less, which works out at four ounces of solution for a 10x12 sheet. Should this prove insufficient, it is only necessary to add to the mixture in the dish a little more stock solution A. The solution does not become muddy, nor does it deposit any sediment on standing. With the addition of more A it may, in fact, be used for several prints in succession, whilst in all other respects it resembles the mixture of permanganate and hydrochloric acid previously described.

Instead of the phosphoric acid we may substitute, along with the salt, potassium bisulphate, sometimes called pyrosulphate, $K_2S_2O_7$, but the phosphoric acid is preferable. If the salt is omitted either mixture may be used instead of the usual acid permanganate as a reducer for negatives.

A solution containing half a grain of permanganate and twenty-four grains of salt to the ounce will act as a bleacher by itself. It takes about double the time of the acid mixture, leaves a considerable image, free, however, from any patchiness, and causes much stain, but this yields readily to the clearing bath as used for bichromate. A most curious thing is that this non-acid permanganate invariably yields a distinctive tone, viz., a pure warm brown. It is most suitable for fairly vigorous prints and strong sunshine effects, particularly in woodland subjects. In close proximity to prints of the usual sulphide tone it tends by daylight rather to yellowness, so that its use is indicated more for special pictorial than for general work.

One other point should be mentioned. In using acid bleachers it is necessary to avoid contact between the liquid and metals or compounds of the heavy metals. A friend of the writer could never succeed with permanganate until it was discovered that he was using dishes painted with bath enamel. All dishes must be acid-proof, or covered with acid-proof varnish. Enameled iron, glass, porcelain, or vulcanite are perfectly safe.

As regards the relative cost, phosphoric acid, being the stronger acid, works out in practice as cheaper than hydrochloric. Bichromate, if used to the point of exhaustion, is probably slightly cheaper than permanganate at present prices, but as the bichromate is unlikely to be anywhere near used up, the cheapest of all is probably phosphoric acid and permanganate, even with permanganate at $2.50 per pound, compared with its pre-war price of twenty cents.—T. H. GREENALL in *Photography*.

Restoring Faded Prints

Turning over the leaves of a photographic album, one cannot but be struck by the number of old photographs which have faded in the course of time. Such examples are mostly silver prints either on albumenised or on gelatino-chloride paper: bromide prints appear to be much more lasting, while platinotypes do not fade, although the paper may discolor. One of the jobs which the photographer is sometimes asked to undertake is to restore some such faded print.

It is evident from the fact that it has to be restored that the picture is a valued and irreplaceable one, since if the negative is in existence it is far better to apply to whoever owns it and get a fresh print made. This would not only be superior to anything we could hope to make of the old faded one, but it might also be made by a permanent process. The assumption, then, being that the picture cannot be replaced, it is most important not to submit it to any operation likely to endanger it, without first photographing it, so that at the worst we should have a copy of it.

If this photography is done on an ordinary, not on an orthochromatic, plate, it will often happen that the result will show so much improvement over the original that it is not worth attempting to restore the latter. The fading takes the form of a change of the darker tones of the picture from deep purple to yellow or yellow-brown, and although the yellow looks much lighter to the eye it is very little lighter to the non-orthochromatic plate. Along with the fading, one sometimes notes the formation of a number of white spots on the print; and as, whatever restoration may accomplish, it will not get rid of these, the new negative, if otherwise satisfactory, should have the spots carefully filled in, and then a print can be made from it, to take the place of the old one. Three times out of four this will be all that need be done; but in the fourth case restoration must be put in hand.

The first stage is, in the case of a mounted

print, to take it off its card. It should be soaked in cold water for a couple of hours before doing anything else to it. This usually splits up the card, which may be pulled off in layers, and, after a little coaxing, can be removed completely. The operation should take the form of removing the card from the picture, not of peeling the picture from the card, as this is likely to result in a tear.

When the mount has been got rid of, the print should be placed in a five per cent. solution of alum for half an hour. This should be done, whether it was mounted or not. It may then be given a thorough washing by hand, say a dozen changes of water spread over half an hour, and will be ready for the restoration process, with a minimum of risk of damage.

The solution employed for this purpose is a slightly acidified one of mercuric chloride. Ten grains of mercuric chloride may be dissolved in a mixture of ten drops of hydrochloric acid and four ounces of water. The exact strength is not very important, but the solution should be fairly weak.

Immersed in this, the picture will generally go a good deal lighter, but it does not usually disappear entirely, and the extent to which it alters varies very much with different prints. The action need not be hurried, and a quarter of an hour in the mercury is none too long. After the lapse of that time the print may be once more well washed; the success of the operation depends very much upon the way in which the washing is carried out.

After washing, the print is placed in a developer of the following type, in which, if all has gone well, the image will soon appear to be much stronger than before:

Scalol or Monomet.....	1 grain
Water	1 ounce
Sodium sulphite 12	grains
Potassium carbonate.....12	grains

There is nothing very special about this formula; it is only given as typical of the developer which may be used. It will be noted that it is weak, and contains no bromide. Ten minutes in such a solution will be ample, and it only remains to wash the print thoroughly once more, and then to dry it.

This method of restoration will be found in most cases to be effective, but it does not follow that it will always answer. The causes of fading are not always the same; the chemical changes in one case may be quite different from those in another, and the exact nature of such changes in any particular case cannot be certainly known.—G. Wilberforce Sturton in *Photography*.

Stereoscopic Photography With a Single Camera

Stereoscopy may be termed the most realistic phase of that very interesting hobby, photography, and my object in this article is to show that pictures may be taken stereoscopically, providing a little extra care and trouble is used, with a single camera when one with double lenses is not immediately available.

Having been invalided during the latter part of last year from the Dardanelles to Malta, and afterwards being sent to Italy to recuperate, I had unique opportunities of taking some good photographs in that very beautiful country. Most of my work has previously been done with a Stereo-Brownie camera, and although this is provided with a pair of single achromatic lenses, I have been able to get some excellent pictures with it, quite satisfactory in every way. This camera, however, being too bulky to carry about on service, all I had with me at the time was a watch-pocket camera, taking pictures 2¼x2¼, and as this size is not very suitable for views I decided to try some stereoscopic pictures by taking two views of the same subject from different standpoints.

The difficulty, which, however, can easily be overcome with a little practice, is to arrange the position of the picture in the view-finder exactly the same for each of the two exposures, but from two different standpoints, as one is liable to shift one's position when winding off the film between the two exposures.

In the center of the view-finder provided with some of the recent models of photographic cameras, is a little round circle etched into the glass itself. When composing the picture, therefore, I made use of this circle by fixing it on some special point in the picture, noticing at the same time the margin on each side of the view-finder. Then steadying the camera on one of the buttons of my jacket, I made the first exposure, and without perceptibly moving the body, shoulders or elbows I wound off the film and returned the camera to the same position, picking up the same view in the view-finder,

and especially noticing that the circle was on the same object. Then, without losing the picture in the view-finder, I took a short step to the left and focussed on the same object, again making the second exposure. Great care should be taken that the camera is held level and that the objects in each picture are in the same horizontal plane.

There is a general rule that the distance between the two lenses, when a steroscopic picture is taken, should be one-fiftieth of the distance from the camera to the principal object. As, however, a stereograph looks better if it shows near objects as well as distant ones, for all intents and purposes the camera should only be shifted about six inches to the left, and for objects about twenty to thirty feet away about three inches. I have mentioned that when taking the photographs with a single camera I stepped to the left for the reason that as the film in the watch-pocket carbine is wound off from right to left, it will be seen that as the left-hand picture is taken after the right-hand the position is reversed automatically. In all stereoscopic negatives reversal has to be made in order to bring the print or the positive into the right position. Taking the picture, therefore, in the way I have indicated, obviates the necessity of the trouble of cutting the film in half and reversing it, and the print can be taken straight from the film as it is. This is one of the advantages of this method.

Of course this method I have explained has its drawbacks. It is almost impossible to take persons in a stereoscopic picture of this description, as it means asking them to remain perfectly still while the two exposures are being made, but as many of the views which one sees have no moving objects in them it is quite worth the trouble. It is much easier to take such pictures with a stereoscopic camera, but it is very useful when one is carrying a single camera to be able to take a stereograph when the need arises, and one often comes across a view which lends itself to stereoscopy and of which one would naturally like to take a record. There is no reason why these pictures should not be taken with a larger camera, and a 2½x3½ is quite as good if the camera is used vertically and not horizontally, otherwise there is too much separation between the objects in each picture.

There is one point the importance of which cannot be over-rated. The width of the prints should not exceed two and one-half or two and three-quarter inches, and if separated they should be mounted quite close together, otherwise eye strain is liable to be experienced when looking through the stereoscope. A great many stereographs bought in shops show a distance of over three inches between similar objects in the two pictures, and the ensuing strain on the eyes quite spoils the pleasure of viewing them.—S. C, Byrne, in *Amateur Photography*.

Color-Sensitizing Dyes

Within the last few days there has come to our hands a set of the issues of the Austrian photographic journal, *"Photographische Korrespondenz"* for the past two years. The numbers contain much interesting matter, some of which, but not a very great deal, reflects the pressure of the war. In the issue for September, 1915, is a paper by Dr. Eder on some, then, newly introduced sensitizing dyes, which is of interest in view of the steps which are now being taken in this country to keep makers of panchromatic plates adequately supplied with color-sensitizers. The new dyes referred to by Dr. Eder are a series produced in the Hochst factory under the superintendence of Dr. E. Konig. They are dicyanine A, pinachrome blue, pinachrome violet, and pinacyanol green. Few details are given of the chemical constitution of these dyes—which, it is stated, have been patented—but the pinachrome blue is said to be a pinacyanol with one $O C_2 H_5$ group. Chemically, it stands in the same relation to pinacyanol as does ethyl red to pinachrome. Dr. Eder has made a spectographic examination of these new dyes in comparison with those previously in common use, namely, dicyanine, pinacyanol, etc., and selects for mention as of special value the dicyanine A and the pinachrome blue.

Dicyanine A is a greenish-blue dye, an ethoxy derivative of dicyanine. It is fairly soluble in hot alcohol, and remains in solution on mixing with an excess of alcohol containing water. As a sensitizer for gelatino-bromide plates, its action extends further into the red and infra red than dicyanine—to 780 to 630 in the dark red, and somewhat weakly up to 850 in the infra red. Its minimum from the orange to the yellow and green is, however, more pronounced

than in the case of dicyanine. In the photography of weak spectra it is necessary to use dicyanine A in conjunction with ammonia, and the keeping qualities of the plates are then poor.

Pinachrome blue is described as an excellent sensitizer for from dark red to orange and as far as the yellow-green. Its sensitiveness does not extend so far into the dark red as does that of dicyanine, beginning about the line A and extending with a slight depression in the Orange to D½E in the yellow-green.

Pinachrome violet is a dye, which in its color-sensitizing action is very similar to pinacyanol. It is a strong sensitizer for red from the line A through the orange and yellow into green. About C½D is a small minimum, and a pronounced minimum, in the green. In comparison with pinachrome blue, the sensitizing action does not extend so far into the dark red, but between C and D the sensitizing action is more even. By addition of ammonia, the general sensitiveness is increased some four or six times, but the plates then tend towards fog. Dr. Eder prefers pinachrome blue to pinachrome violet, whilst he finds no special advantages in pinacyanol blue.

His general conclusion is that for photographing from the infra red to the red the best sensitizer is dicyanine A, in conjunction with ammonia; more extended sensitizing action, not quite so far into the infra red, but, on the other hand, extending further towards the orange, is supplied by ammoniacal dicyanine. From the limit of the infra red and dark red to the yellow the most satisfactory results were obtained with pinachrome blue, used without ammonia, although this addition enhances the general sensitiveness. From yellow to green, and including also blue and violet, preference is given to pinaverdol. These color-sensitizers, just mentioned, provide the means of covering the whole visible spectrum, and of including also the infra red (from 850 or 890), without difficulty in spectroscopic photography.

Easy Plate Marking

Many more prints would be plate-marked if it were generally known how easily the operation can be performed. The way generally recommended of burnishing the print down upon a cardboard shape with a bone paper-folder is tedious, and does not usually give a well-defined edge, but a method given by an old photographer, who has practised it for years, is much easier and more certain, especially when a number of similar prints have to be treated. A piece of tough paper, glazed manila, answers well. It is cut to the outside size of the prints, and upon this are pasted two pieces of very hard card exactly the shape of the desired plate-mark, one being fixed upon either side of the paper and exactly in register with each other. Two prints are taken and placed face to face with the cards and paper between, the paper ensuring that the cards will not move out of center. The whole is then placed between several thicknesses of soft paper and run through a wringer-mangle or rolling-press. If the prints are not too dry a sharp and permanent plate-mark will be impressed upon each. A rubber wringer gives the best results, but hard rollers will answer well if there is enough soft backing paper to take the impression. Flat pressure in a screw press also answers fairly well, but considerable power must be used; an ordinary dry-mounting machine of a rather large size is quite suitable.—*British Journal of Photography.*

Moving Lamps or Moving Sitter

Should the electric light be fixed or moveable? is a question often addressed to us by those who contemplate an installation—a question, like many others, which cannot be answered by a direct statement. Much depends on the class of work done and the time which can be allocated to each sitting. Much also depends on the type of lighting and of lamp employed. In general, we should say lamps of the enclosed arc type are better fixed in definite positions, preferably behind some form of artificial window on which blinds may, if necessary, be manipulated in the ordinary way. This is the method originated by Morgan of Aberdeen, which was used with marked success for many years by one of the cleverest of North of England portraitists. One great advantage of such a method which may, of course, be adopted equally well with half-watt lamps, is the freedom from obstruction of the floor space and the keeping out of sight of the machinery, so to speak. Further, we are inclined to think that movable lamps encourage some operators to "fiddle about" in a way that is exasperating to many sitters, and that

costs more in damaged expression than is gained by improved lighting. While we would not lay down any hard-and-fast rule, we think there is much to be said for acquiring the habit of putting the sitter into the right place straight away and of then making the subtle modifications which may be necessary by means of one or two portable and easily manipulated head-screens. We regard this as the *direct method* of going to work. It saves time and often irritation, and a capable operator will rapidly accustom himself to it.—*British Journal of Photography.*

Leveling a Camera

The little levels fitted to cameras are often too insensitive or too inaccurate to be of much use, and we know many photographers who ignore them. It may not be so well-known as it deserves to be that a horizontal line ruled across the center of the finder will serve as a more accurate and easily read level in many cases. If the camera is held so that the image of some point in the subject which is on a level with the camera falls on the line so ruled, we may be sure that the camera is level. To prevent error, it is best to settle the position of the line by directing the camera at some subject and noting the exact height on the finder of some point level with the lens, and then ruling the line on the screen of the finder through the point that is so noted. This plan, which enables us to see when the camera is level without removing the eyes from the finder, should be particularly helpful in the case of reflex cameras.—*Photography.*

Time and the Latent Image

Few photographic workers would have the patience to carry out researches which require a long period of years for their fulfilment, but Mr. H. J. Channon, who lectured before the Royal Photographic Society the other day on the influence of time upon the latent image, is one of that patient order. He exposed thirteen Ilford quarter-plates in 1894, under identical conditions, giving each of them four seconds' exposure on a landscape subject, developed one of them immediately, and placed the others in storage, packing them in tissue paper saturated with vaseline. One of these was developed at the end of two years, a second in 1898, and since then one every four years. Seven of these plates have now been developed, and the results placed side by side show that there has been a more or less consistent retrogression. The last plate to be developed gives a very thin image in place of the dense and vigorous one of twenty years earlier. It is, nevertheless, a respectable negative from which a fair if somewhat flat print can be obtained. While the decay of density in the course of time was apparently continuous, the rate of retrogression during the last twelve years was relatively small.—*The Amateur Photographer.*

NOTE: This is reminiscent of Charles Darwin's experiments on the action of earthworms in the formation of soil. He placed stones beneath the surface and waited thirty years before ascertaining how far they had sunk. [H. D'A. P.]

Photographic Uses of Formaline

Il Corriere Fotografico for August contains a useful article on the above subject by Comirias De Albroit. The writer points out that formaline can be used for gold toning, giving, with printing-out and bromide papers, a rich brown tone, the formula advised reading: Thirty-two ounces of water, fifteen drops of formaline, and one ounce of a one per cent solution of chloride of gold. He states that with this bath the unpleasant purple effects of a cyanide gold bath are entirely obviated. Another use is as a developer, particularly in the case of process plates where extremely clear reproductions of black and white line subjects are required. The formula offered is as follows: Six hundred grains of hydroquinone, forty drops of formaline, and fourteen ounces of water. It will be seen that this developer is free from alkali. Formaline is also indicated as a hardening agent, decidedly superior to alum for plates and papers, for which purpose a strength of about five per cent will be found useful. I would like to add to the above remarks my own experience with formaline as an almost perfect preventative of green stains in autochrome development. For a long time I have scarcely had a single failure in this respect, my procedure being as follows: At the end of development wash the autochrome for one minute in plain water, next immerse one minute in a ten per cent formaline bath, and then wash off the surface fluid and immerse immediately in the permanganate reverser.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Keeping Quality of Chemicals

A correspondent in Iowa asks if I will enumerate the photographic chemicals that keep poorly and also those that one need have but little or no concern about. This is rather a large order. Potassium carbonate crystals are notoriously poor in keep quality except in original packages or in air tight container, but in solution its behavior is perfect. Pyro, for example, keeps quite well as a chemical, but in a plain solution it has practically no keeping quality whatever unless some preservative is added. Caustic soda and caustic potash, together with ammonium sulphite and ammonium carbonate are hardly to be depended upon very long, even when well protected in close stoppered bottles. All other photographic chemicals can be expected to keep for years if well protected. Unprotected, that is, exposed to the air, bichromate, bromide, oxalate and permanganate of potash keep well, as does hypo, borax, the alums, ammonium bichromate, citric acid, copper sulphate, lead acetate and chloride of mercury. Pyro, hydroquinone and nitrate of silver keep fairly well without too great care. When we come to solutions, all the developers have poor keeping qualities if made up in water alone. However, a preservative is always added and the keeping quality of the solution depends upon this last, the impurity in the water, and the exclusion of air. Properly made up and kept well corked, they can be said to keep well in their solutions as ordinarily made. Notorious poor keepers in solution are the two caustics, soda and potash, together with sulphurous acid, sulphuric acid being quite stable in solution. Cyanide of potassium, ammonium sulphide, sodium sulphide and sodium sulphite are not very good keepers in solution and to the list can be added a few others, that require a little care as to a well stoppered container. These are ammonium carbonate, potassium ferricyanide, potassium metabisulphite, potassium permanganate and sodium sulphite. The keeping quality of nearly all of these last depends somewhat upon the strength of the solution, the stronger ones keeping better than those more dilute. Aside from the exceptions noted, photographic chemicals can be considered as exceptionally stable and as having good keeping quality, ranking with such everyday articles as salt, sugar and the like.

Red-Chalk Bromides

A California correspondent wants to know where he can get some neutral potassium citrate to use in a formula for red tones on bromides. He has been referred to a local wholesale druggist but the price is quite high at present. David Ireland, an English worker, recently described a new process in *Amateur Photography* of London, that he claims is superior to the old method. The negative should be a good one and the printing carried well beyond the usual point. The toning bath is as follows:

Copper sulphate .....20 grains.
Potassium ferricyanide ..10 grains.
Water ..... 3 ounces.

To the resultant muddy, greenish fluid is added sufficient of a saturated solution of ammonium carbonate to dissolve the precipitate and give a clear solution having a slight greenish-blue tinge. To this is added another half ounce of the carbonate solution in order to secure an excess, the first addition being dependent upon the condition of the salt, hence the instructions to first clear the solution. The fixed and washed bromide is flowed with this solution under which is evolved a series of colors gradually increasing in warmth, red tones requiring full action. Ten minutes washing follows and then an immersion in a bath made up by adding five drops of strong liquid ammonia to each ounce of water, to remove the slight pink tone in the high lights. A stronger ammonia bath will reduce the print and this is advisable if the latter will be improved thereby. A short final washing

completes the operation. One portion of the toning bath will answer for two prints in immediate succession but it is better to use a fresh one for each. This looks promising and we would be pleased to have any reader report upon their success with it.

Making Library Paste

We have frequent requests for a formula for making a mounting paste similar to Higgins' Photo Mounter. It is impossible to do so; or rather, practically impossible for our correspondents to follow out the directions were we to give them. This well known paste is made under a patented process and we believe requires the cooking to be done in a vacuum. An excellent library paste, one having all the merits of many of those on the market, can be made by giviing attention to a few requirements. One should use the best grade of white dextrine; and, in dissolving it, use water at a temperature of one hundred and sixty degrees Fahrenheit, maintaining that temperature within a variation of less than one degree throughout. Take a gallon of water, bring it to the prescribed temperature and then slowly stir in a little over five pounds of white dextrine, maintaining the temperature and stirring until a perfectly clear solution results. At this point one can stir in about half an ounce of both oil of cloves and oil of wintergreen to serve as an antiseptic and germicide. As the solution cools it is poured into jars or bottles and allowed a week or more in which to congeal, when it will be white and firm, ready for use by adding a little water and working around with a brush, as is the practice with such pastes.

Those Dark Tree Trunks

One of the best pictures sent in recently for criticism was a very fine thing except for an unnatural blackness of several tree trunks that played no small part in the composition. To make matters worse, the more distant ones were just as black as the nearest. The maker was advised to take a pan of red "Acme" water colors, make a weak solution and paint it over these thin parts in the negative. He was told to give the trunk of the nearest tree a single thin wash, the next nearest one two washes of the color, and so until the most distant one had been treated. The resultant print, after the tinting had been done, was most satisfactory. Large trees well back in the middle distance no longer looked, by reason of their depth of tone, like small trees in the foreground. The whole picture was given an effect of perspective that was strongly in contrast to the flat, hard effect of the print from the negative before the treatment was applied. Any of the reds or yellows of the "Acme" colors are suitable, a very little washing of the negative serves to remove the work if not satisfactory, and this particular brand does not have the fault of forming small spots of pigment as the wash dries in the gelatine film of the negative. A wash, more or less strong as required, is also suitable for strengthening any too transparent part of the negative where an even tint is not demanded. Wet rocks and even wet sand in the foreground of wave pictures, are always too dark; but, given a wash of this color the negative is improved. Distant banks of trees often come much too dark to suggest their distance and this plan of treating them is excellent. Every worker should have a twenty-five cent pan of this color at hand, together with two or three suitable brushes of different sizes. Where fine detail is to be treated the color can be applied with a small brush directly to the dry film, but for larger surfaces it is best to first dampen the negative by immersing it in water and then blotting off the surplus.

Stains On Gaslight Prints

An Illinois correspondent sends several prints that show stains, brownish ones, that seem to be the result of careless handling, during manipulation, with fingers not entirely free from hypo. He wants to know how they can be removed. Our correspondent is perhaps one of those unlucky individuals who are either very careless or else endowed with warm hands particularly liable to absorb and carry chemicals from one thing handled to another. If he will dissolve eighty grains of persulphate of ammonia in eight ounces of water and then add fifteen drops of stronger ammonia, he will have a solution that will generally remove these stains if the print be immersed therein for a short time. This solution has an advantage over the weak Farmer's reducer frequently advised in that it can be allowed to act for some little time without reducing the image of the print and without giving the yellow stains that the latter sometimes produces.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

The Sky Line

Occasionally we yet see scenes in which large areas of clear sky are included in the picture. There are two very good reasons why this should not be allowed. First, the lighter areas being the most conspicuous on the screen, more than necessary of clear sky area detracts from the performers who should be the center of interest. Secondly, should a print be used or abused until it becomes "rainy" from scratches and dirt, the defects are most obvious in the lighter areas. Where possible, the sky area should generally be reduced to a small space in the composition. Of course, striking cloud effects, when obtainable, constitute an exception to the generally good rule of a high sky line. In case a close-up must be photographed against the sky, the use of an iris solves the difficulty. Where too much sky,—or foreground, either must be included in the usual proportions in order to obtain sufficient horizontal scope, the use of masks at top and bottom of picture is often worth while.

"Hooded" Sets

Naturally, the walls of a room are usually more brilliantly illuminated near the bottom than they are at the top, whether the source of illumination is day or electric light. In the case of daylight coming through windows, the source of light is higher than the windows, while the windows themselves are seldom at the very top of the room. All electric fixtures, with the comparatively rare exception of some indirect lighting systems, are designed to throw the light down from a source usually considerably below the ceiling. Yet many scenes on which small fortunes have been spent for "props" to give "naturalness" are photographed with the light from diffusers illuminating the tops of sets more brilliantly than any other portion. Correcting this defect not only gives more natural effects, but frequently more artistic results as well, through eliminating too bright areas near the top edge of the picture and adding a somewhat dark relief to the faces of the performers. And, withal, the result is easily achieved by "hooding" the tops of sets with awning-like strips, projecting from two to four feet over the scenes. The higher the walls of the set, the farther out, of course, should the dark "hooding" project to achieve the desired result of shading the tops of the walls. Beaver board, or light frames covered with burlap or building paper, serve the purpose very nicely, and may be readily attached or removed.

New Focusing Microscope

We are advised of the manufacture of a new focusing microscope especially designed for motion picture cameras. This microscope is built along the lines of a short telescope, giving six to eight times magnification, right side up, and covering the full picture area. Its adjustable ocular carries a fine cross wire which lies in the plane of the picture image and serves to facilitate focusing for eyes of different strength, the utmost precision of focus being assured. The ocular is fitted with an indicator tube which is turned to the right or left until the sharpness of the cross hairs is obtained, the necessary adjustment being dependent on the eye of the observer. This position can be read on the engraved tube of the ocular and the cameraman should bring the ocular always into this position when the microscope is used. The ocular tube can be drawn out; and, being turned to the right, it will stay locked ready for use. The microscope can be fitted to any professional camera by the manufacturers. Particulars as to fitting this device to any definite make of camera are obtainable upon request to C. P. Goerz American Optical Company, 317-23 East Thirty-fourth Street, New York City.

A. B. deVillentroy, formerly of New Orleans, has purchased the McLaughlin studio at Venice, near Los Angeles.

OUR BOOK SHELVES

"Our Flag and Its Message"

This handsome little book is a bugle call to our people, a call to action and to an action with an ideal in view. President Wilson's appeal for unity precedes the history of our flag, told by two army men, Majors James A. Moss and M. D. Stewart, two of those who have had its honor in their keeping for many years. There are added "America" and the "Star Spangled Banner," the entire bound in a dainty red cloth binding with a glorious American flag printed in four colors on a white label. It is the sort of a book of which every American citizen should own a copy and not only own one, but spread the knowledge of its importance abroad that it be distributed through churches, schools and clubs with the final results that it be in the hands of every boy and girl, immigrant and alien,—it is thus that the spirit of Americanism is fostered. Another message this beautiful token carries is to the American Red Cross, as that institution will be given all the profits derived from its sale by the publishers, J. B. Lippincott Company, Washington Square, Philadelphia. Price twenty-five cents, net.

"Hypnotism"

This is an exposition of the little understood science and guide to the practice of hypnotism. As its sub-title explains, it gives the facts, theories and related phenomena with explanatory anecdotes, descriptions and reminiscences. The author, Carl Sextus, explains very fully and in all detail the importance of hypnotism in the light of its recent development in the scientific and surgical world. The relationship of hypnotism to society, its significance morally and legally are dealt with and popular misapprehensions regarding the science are corrected. The book deals with telepathy, somnambulism, hypnotism, clairvoyance and other phases of the subject. The volume is well illustrated, very thorough in its treatment of the subject, and all in all, is intensely interesting even to the one who does not contemplate entering too deeply and thoroughly into the realm of the occult. The book is handsomely bound, contains over three hundred pages and its popularity can be judged from the fact that this new, revised edition is the fifth since its original publication but a few years ago. Published by The Page Company, 53 Beacon Street, Boston, Massachusetts,. Price two dollars net.

"The Art of Photoplay Writing"

This little book, printed on India tint paper, is very complete in its instructive points. Likewise, it is remarkably clear. The author, E. F. Barker, is a professional critic, a man of high knowledge upon this national art and industry. There are eleven chapters in this book, divided in the following order: The Principles of Photoplays, Terms Used in Photoplay Writing, The Synopsis, The Plot, A Model Scenario, How to Prepare Manuscripts, The Construction of Photoplays, What to Write About, Scenes, Climax, and Summing Up. Price fifty cents, prepaid. Published by Colossus Publishing Company, 751 Title Guaranty, St. Louis, Missouri.

New Printings of Standard Juveniles

The Page Company, Boston, announce new printings of the following "always popular" books for young people: Jacobs' and Richards' "Blue Bonnet Keeps House", third printing; Richards' "Snow White", seventh printing; Benton's "Saturday Mornings", eighth printing; Richards' "When I Was Your Age", sixth printing, and Postnikov's "Our Little Cossack Cousin in Siberia", second printing. The irresistible "Anne of Green Gables", which has proven equally popular with young and old readers, has just been reprinted for the forty-first time, and Annie Fellows Johnston's wonderful allegory, "In the Desert of Waiting", is reprinted for the sixteenth time.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

STATE SECRETARIES.

California—A. E. Davies, 695 61st St., Oakland.

Idaho—Eugene Clifford, 902 9th Avenue, Lewiston.

Iowa—Harry B. Nolte, Algona.

Kansas—H. H. Gill, Hays City.

Mississippi—George W. Askew, Jr., 211 34th Ave., Meridian.

Missouri—J. F. Peters, Room 210, Union Station, St. Louis.

New York—Louis R. Murray, 21 Clark St., Ogdensburg.

Oregon—F. L. Derby, La Fayette.

Texas—Emmett L. Lovett, Roby.

Wisconsin—F. W. Freitag, 500 Monument Square, Racine.

MEXICO.

Vice-President—Jose Ramos, Zitacuaro, Michoacan, Mexico.

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CANADA.

Album Director—R. W. Franklin, Dodsland, Sask., Canada.

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Alabama—Richard Hines, Jr., Barton Academy Bldg., Mobile.

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Florida—Capt. E. S. Coutant, Lock Box 73, Stuart.

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Idaho—Eugene Clifford, 902 9th Avenue, Lewiston.

Illinois—George A. Price, 320 N. Locust St., Centralia.

Indiana—H. E. Bishop, 1706 College Ave., Indianapolis.

Iowa—C. W. Parker, Mapleton.

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Massachusetts—John Mardon, 161 Sumner St., Boston.

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New Hampshire—Mrs. A. Leonora Kellogg, Box 224, Londonderry.

New Jersey—Burton H. Allbee, 103 Union St., Hackensack.

New York—Charles F. Rice, P. O. Box 517, Mamaroneck.

North Dakota—Jas. A. Van Kleeck, 619 Second Ave., North, Fargo.

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Pennsylvania—L. A. Sneary, 2822 Espy Ave., Pittsburg, Pa.

South Dakota — C. B. Bolles, L. B. 351, Aberdeen.

Texas—J. B. Oheim, P. O. Drawer M, Henrietta.

Utah—John C. Swenson, A. B., Provo.

West Virginia—William E. Monroe, Box 298, Point Pleasant.

NEW MEMBERS.

4358—J. E. Dow, R. F. D. No. 2, Box 104, Big Sandy, Texas.
Class 2.

4359—T. A. Harkness, P. O. Box 1413, Missoula, Mont.
Class 2.

4360—Charles A. Girt, Lock Box 453, Rainier, Or.
Post cards and up to 5x7, developing papers, of Columbia River, logging and lumbering views; for anything novel or interesting.
Class 1.

4361—Mrs. J. O. Lalonde, P. O. Box 25, Salvador, Sask., Canada.
Class 3.

4362—A. B. Haile, 1935 Bancroft Way, Berkeley, Cal.
2¼x3¼, various papers, of outdoor views, birds, also animals; for the same. Prints 2¼x3¼ or smaller. Class 1.

4363—Jonathan T. Welsh, 50 Fort Greene Place, Brooklyn, N. Y.
3¼x5½, various papers of subjects and views in and around New York; for any interesting subjects. Class 1.

4364—S. A. Schwarz, 590 West 172nd St., New York City.
2¼x3¼, 3¼x4¼, 5x7, 6½x8½ or larger, various papers, of indoor portraiture and genre; for portraits, genre, etc. Class 1.

4365—V. L. Mefferd, 550 S. West St., Lima, Ohio.
3¼x5½ and 1⅝x2½, developing papers, of streets, marine scenes, speed pictures and miscellaneous views; for anything of interest except figure studies. Class 1.

RENEWALS.

501—William A. Bixler, 625 Union Ave., Anderson, Ind.
Class 3.

1980—Ansel Kisner, Fairmont, W. Va.
Formerly at Catawba, W. Va. Class 2.

2498—B. B. Sprout, D. D. S., 1st National Bank Bldg., Williamsport, Pa.
3¼x5½, 4¼x6½ and 5x7, of miscellaneous subjects and some speed work; for the same. Class 1.

4339—Hayden B. Brubaker, 730 Penn Ave., West Reading, Pa.
Name erroneously spelled Brutbaker in April issue.
2¼x3¼, 3¼x5½ and 5x7, developing paper, of views of trips and home life; for anything of general interest. Class 1.

4351—C. H. Knowlton, Box 33, Vallejo, Cal.
Is not now in position to do any exchanging and is transferring from Class 2 to Class 3.

CHANGES OF ADDRESS.

403—Lou P. Tillotson, 676 E. Ankeny, Portland, Or. (Was 125 East 11th St.)

2288—George A. Price, 320 N. Locust St., Centralia, Ill. (Was Urbana, Ill.)

2970—C. W. McAlester, Maricopa, Cal.
(Was Coalinga, Cal.)

3200—A. H. Parrish, R. F. D. No. 2, Lebanon, Or.
(Was Sodaville, Or.)

3281—B. W. Lemley, 429 Melrose St., Chicago, Ill.
(Was Beatrice, Nebr.)

3901—Monte McFry, Los Vegas, New Mex.
(Was Billings, Mont.)

4090—John W. Cook, 1117 W. Ave. 54, Los Angeles, Cal.
(Was Berkeley, Cal.)

4193—Capt. W. H. Smith, Fort Wayne, Detroit, Mich.
(Was El Paso, Texas.)

4200—Ira J. Bugbee, 2202 Pasadena Ave., Los Angeles, Cal.
(Was Santa Ana, Cal.

4226—C. A. Dexter, 225 Excelsior St., San Francisco, Cal.
(Was care Defender Ph. Sup. Co., Aronson Bldg.)

4316—Scott Keator, 1836 Nason St., Alameda, Cal.
(Was Grass Valley, Cal.)

WITHDRAWAL.

4100—W. E. Owen, 305 Thompson St., Pendleton, Or.
For lack of time.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

The Columbia Photographic Society

Monday evening, May fourteenth, a week later than the annual business meeting, a demonstration was given on the printing and use of Azo paper, by Ben Kieger of the Eastman Kodak Company, before the members. The following Monday, the pictures submitted in the contest for architectural subjects, namely doorways, will come up for consideration, and the silver medal will be awarded. Monday evening, May twenty-eighth, there is scheduled an illustrated photographic talk by the veteran photographer, William N. Jennings. Mr. Jennings has not only an inexhaustible fund of information and experience from which to draw, but he has a keen appreciation of the most acceptable method of interesting his hearers which results in a most enjoyable evening whenever he can be induced to give the club a talk. Wednesday, May thirtieth, there will be a Memorial Day Outing at Horsham, a location quite fitted for such an event. The monthly announcement of the club also records, with deep regret, the death of Dr. G. J. R. Miller, who was, for a number of years, president of the society. Appreciation of his valuable service and sterling qualities is expressed, as is also the club's sincerest sympathies for his afflicted family.

At the National Convention

The entertainment features at the National Convention will not be few in number or poor in quality. Monday evening an informal reception and dance will be given in the Hotel Wisconsin, with other features for those who do not do the light fantastic. Tuesday noon a luncheon will be served and the remainder of the day will be turned over to the manufacturers and dealers. Thursday evening there will be a banquet and other entertainment which is not planned or given space on the program. The Milwaukee people have promised to do their part and the entertainment committee needs no recommendation. The instructive features of the program will not be neglected, so begin to make your arrangements to attend on September third to eighth.

Illinois College of Photography

The students were given a treat last month when Rev. Robert S. Fife, of the Fife Evangelistic Company, then in Effingham, posed for them made up as Abraham Lincoln. Mr Fife is one of the best impersonators of the "Great Humanitarian" in the country. About one hundred and fifty negatives were made, the students appreciating the fact that a subject like Mr. Fife is not to be found every day.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

W. S. Valentine of Redding was in San Francisco during May.

H. H. Sackrider, the popular leading photographer of Marysville, and Miss Bryan, of the same city, were married the first week in May. They spent their honeymoon in San Francisco.

"Premo" Smith is with us again, the first time in six years. He is now leading man on the Coast for the Graflex line of cameras.

Mr. Bertrand, the popular Cramer plate man, took the Eureka trip recently.

Emma Freeman of the Freeman Art Company, has the exclusive right to photograph the U. S. S. Milwaukee, which was recently wrecked at Eureka.

The Holmes studio, Eureka, has closed for the summer.

The writer has just returned from the Southland and will leave for the East in the interest of Probus products, in June.

Harold James McCurry, the popular Sacramento photographer, was married May thirteenth, to Louise K. Schaal, the charming daughter of Mr. and Mrs. G. Schaal of the same city.

W. Metcalf of Santa Paula has purchased a home handsomely located in the mountains overlooking the city.

W. H. Dingman of Ventura now has one of the finest studios in his part of the state. It is on the ground floor with a specially built display window and well appointed reception room.

Mr. and Mrs. Stagg recently motored up from Los Angeles to spend a week in San Francisco.

Clarence Lloyd has purchased the Stuart Art Shop of Flagstaff, Arizona, taking possession the first of May.

Geo. Vassar, the Paso Robles photographer, has purchased a new Dodge car.

Mr. C. W. Blair has moved to Arizona, where he intends to establish a portrait and finishing business.

J. E. Stromberg of San Diego was up a few days ago on business.

Fred Gage will take charge of Putnam & Valentine's Tahoe Branch for the summer.

C. Graves, formerly of Oakland, has purchased the commercial business of W. C. Bach, Los Angeles.

Business Talks at the Convention

Anderson Pace, Advertising Counselor of the Association, will talk on Studio Advertising. Mr. Pace not only knows advertising in general, but he knows its application to photography. E. B. Moon, who at present is director of the Department of Community Development for the Farmer's Review of Chicago, will talk to the Convention on "Reaching the Rural Trade". Professor Walter Dill Scott, who is director of the Bureau of Salesmanship of Carnegie Institute of Technology and who for some time has been professor of psychology at Northwestern University, will talk upon "The Psychology of Salesmanship". Frank Jewell Raymond, is known as a live wire and he always has a message full of inspiration and solid thought. His talk will be on the subject of "Service Before Self", having to do with the photographer's relation to his customers, his relation to his community and his relation to his profession.

A New Kodak Catalogue

The 1917 Kodak catalogue has just reached us and none of our readers should delay in securing a copy, either from their dealer or by writing directly to the Eastman Kodak Company, Rochester, New York. Perhaps the most interesting new feature connected with the line is the Kodak Range Finder, which adds greatly to the ease and satisfaction of using a camera. With the anastigmat and their large stops, the necessity for careful estimation of distances when full opening of the lens was used, was somewhat an exacting matter. With the Kodak Range Finder this difficulty is entirely removed and

none can appreciate the importance of this improvement more than the experienced worker. The Kodak line is a very complete one and with the several handsome models of Brownies it would seem that even the most exacting camera enthusiast should be able to find just what he wants, listed within the pages of this catalogue. Film tanks, plate tanks, developing boxes, and a number of other photographic requirements are listed so that this catalogue should prove of more than passing interest even to the amateur who is not quite sure that a new camera is necessary to his happiness.

The New Harvey Meter

Satisfactory as was the original, the new, or No. 2 Harvey Exposure Meter, as now sent out, embraces quite a number of important improvements. Mr. Harvey has, since putting out the first meter, devoted over a year's time to the making of thousands of additional tests in various parts of the country, in order to check up the exposures given on the new meter. On the latter, the Kodak stops are listed in addition to the U. S. and f stop system, and the exposures are given in one-twenty-fifth, one-fiftieth and one-hundredth second and the like instead of one-twentieth, one-thirtieth and so on, the exposures including those for Cirkut, Graflex and motion picture cameras as well. On another page will be found a letter from Mr. Harvey that we have taken the liberty of printing by reason of the interest that we feel it holds. Circular No. 11, concerning the new meter, is more extensive than any of its predecessors and it gives many valuable suggestions in the matter of securing correct exposure. This can be obtained from most dealers or directly from George L. Harvey, 105 S. Dearborn Street, Chicago, Illinois, for the asking.

The Universal Motion Picture Camera

We have just received from Burke & James, Incorporated, 240 East Ontario Street, Chicago, Illinois, a neat catalogue of the popular Universal Motion Picture Camera. This camera is a particularly desirable model for newspaper photographers and commercial film producers by reason of its compact form and the quickness with which it can be set up and operated. The firm mentioned will be glad to send a copy of this catalogue to any of our readers who may write for it, and California readers can secure a copy by addressing the California Distributors, the Atlas Educational Film Company, 821 Market Street, this city.

Ohio-Michigan Association Convention

The conditions of award for the Diamond Medal of Honor or first grand prize, open to the world, are as follows: No picture shall be passed upon for this honor that is

not properly titled. Should the excellence of the picture chosen for honor be judged not to be equal to the one chosen as best at our last annual meet, then the Trustees reserve the right to retain the medal. Pictures shall be passed upon by two distinct set of judges, the one selecting a number of three to five pictures, the other selects the one. Any false claims made by winner of medal forfeits all honors, and at the request of Trustees the same shall be surrendered. The second grand prize will be fifty dollars in gold, in addition to which there will be four special prizes of trophy cups, open to Ohio, Michigan and Indiana photographers, three pictures to form an exhibit. The convention will be held at Cedar Point, Ohio, on Lake Erie, July thirty-first to August third, inclusive. Address for full particulars, A. E. Riley, Secretary, Coshocton, Ohio, and be sure to compete for one or more of the valuable prizes.

Dealers and Photographers, Attention!

In buying second-hand photographic lenses, it is advisable to use the utmost care to

make sure that the lens is genuine. It is well known that in many instances lenses are being sold as the product of some reliable manufacturer, that, as a matter of fact, are cheap, rectilinears or even absolutely worthless pieces of glass, inserted in the original cells of the manufacturer to deceive the buyer. If a lens is not bought from a reliable dealer it is always advisable to submit the same to the manufacturer, such tests generally being made free of charge.

A specific case of this kind has just been brought to our atttention by the C. P. Goerz American Optical Company of New York. A lens bearing the engraving: "Goerz Series 3, No. 7, Focus 14 inches, 43711", was brought to them with the complaint that it was not working satisfactorily. Upon test it was found to be a counterfeit of the worst kind, showing that all dealers and photographers should be on their guard when purchasing lenses from other than the most reliable sources.

Send For These Catalogues

We have received from the Simplex Photo Products Company, Richmond Hill, Long Island, New York, a set of the "Big Four", their new series of catalogues describing the Simplex line of photographic and motion picture products. One of these is devoted to the new Simplex Precision Portable Motion Picture Projector, a high grade machine taking standard film, and accommodating one

thousand foot reels, yet built into a portable carrying case measuring but 16¾x18¼x7 inches, supplied complete with an electric motor. A feature of this projector is the new Simplex "Screenlite" lighting system which permits of the projecting of single film images, one by one on the screen, for any length of time, without any possibility of the film catching fire. This result is produced without the use of trap-doors or liquid condensers of any sort, and the illumination is said to exceed that yielded by a four-hundred watt, nitrogen-filled, electric lamp. The other three catalogues are devoted to the complete Simplex line of motion picture cameras and accessories, the well known Northern Light, and the Simplex system of reflectors and enlargers which do away with the necessity of condensers of any kind. A post card will bring any or all of these four catalogues and we would advise our readers to send a card today.

New Premo Cameras

There is a new Premo catalogue and all of our readers are advised to secure a copy from their dealer or, if that is not possible, to apply directly to the Rochester Optical Division, Eastman Kodak Company, Rochester, New York, for one. The new catalogue lists several new models of roll film Premos, and, of course, the regular Premo Film Pack cameras are pictured and described in all their completeness. It must not be forgotten that these cameras also accommodate plateholders and that they are backed up by the policy of the Eastman Kodak Company of allowing nothing to go out of their factory that is not perfectly satisfactory. Several excellent view cameras are also listed and special attention should be called to the Eastman View No. 2, an improved model of the Empire State, which would seem to be about all that could be desired in the way of a view camera. The new 7x11 size is one that is proving exceptionally popular as the shape is a much more satisfactory one than the heretofore popular 8x10. This new size with the large frontboard having a sliding arrangement that permits the centering of the lens on either half of the plate, enables one to make two exposures on one plate and these of a most pleasing proportion.

1917 Kodak Advertising Competition

The Eastman Kodak Company have increased the number of prizes in the 1917 Advertising Contest to fourteen, so that there will be a greater opportunity for each contestant to win a prize that will repay the effort that may be made. This enterprising firm relies upon the prize winning pictures

in these competitions for most of their advertising illustrations. The advertising is written around the pictures, but the pictures must be as convincing as the text. In fact, the pictures must be able to stand alone—must get the idea to the reader whether he reads the text or not. As they suggest: "If the picture is more convincing than anything we can say, we devote most of our space to picture—if it tells the whole story of the good times one can enjoy by owning and using a Kodak, we merely add to its suggestion 'Take a Kodak With You' or some similar phrase, and set it to work as an advertisement."

All of the advertisements in the magazines are not carefully read, but everyone sees the pictures, so the advertisement with a picture that tells a convincing story has the advantage.

They want selling pictures. And selling pictures are the ones that impress their story on the mind in a flash. There is never any question about the story a real selling picture tells. It must make the thing for sale so desirable that, so far as the desire is concerned, the sale is made.

One may see thousands of pictures made with Kodaks, and all of them may tell interesting stories, but never a suggestion be given of the good fun for the one who made the pictures. If there had been a second camera to include the boy or girl with the Kodak, the part it played in the good times would immediately have been apparent and the Kodak would have taken its share of the credit.

This is the important point about advertising illustrations for this use. It's much the same as hunting or fishing pictures. Pictures of the game have no special interest except as natural history subjects, but if the hunter is pictured in the act of bringing down the game or is in any way made an active part of the picture, interest immediately centers around the hunter and the picture at once appeals to the sportsman.

The picture wanted need not be made with Kodaks, but Kodak or Kodak sundries must be used when the picture requires such articles.

The Kodak Advertising Competitions have brought many photographers into this line of work, and some of them have found a profitable market, for other pictures than those advertising Kodaks. These competitions offer an incentive for taking up such work, as the prizes are well worth while. There are fourteen of them as follows: First prize, seven hundred and fifty dollars; second prize, five hundred dollars; third, three hundred and fifty dollars; fourth, two hundred and fifty dollars; fifth, two hundred dollars; sixth, one hundred and fifty dollars; and eight prizes of one hundred dollars each.

The winner of the first prize shall be awarded no other prize, and no contestant shall be awarded more than two prizes. The contest will close November first, 1917, at Rochester, New York, and October twentieth, at Toronto, Canada. Circular giving complete terms of the competition will be mailed on request to the Eastman Kodak Company, Rochester, New York, or may be had from your dealer.

New Chicago Firm

Announcement is made that The Bass Camera Company has purchased the business and good will of the old established firm of Phil. G. Luber, 109 North Dearborn Street, Chicago. The new firm will greatly increase the line of photographic apparatus and goods carried, both new and used, and will strive to give all customers the best of service. As Charles Bass, president of the new firm, does not want for experience and does not lack initiative, a generous measure of success is assured.

Fellman & Company Move

Announcement is made that Fellman & Company, the well known Chestnut Street firm, has removed to 1010 Chestnut Street from their former location across the street at 1029. The firm enjoys the confidence of a wide circle of patrons and in the new location they will be equipped for even better service than heretofore. We wish them a continuation of their success that they enjoy in their efforts to please their customers with the goods that they turn out.

Illinois College of Photography

We understand that Samuel H. Street, B. C. P. of 1911, and now foreman in an engraving plant in Winnipeg, Canada, is to be transferred to New London, Ontario, Canada. Mr. Treat will act as manager of the new shop being established by his company in that city.

"WHEN FROM BEHIND THE MOONDIPT BUSH
TITANIA FLOATED IN A SILVER HAZE"
By SIGISMUND BLUMANN

XIV No. 7 JULY, 1917 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

In ***1909*** it was stated of

Cyko Paper

"Each grade of Cyko has more latitude, plasticity, chromatic rendition and proper scale of gradation than any other paper. Its scope is unlimited"

and yet its scope has been enlarged every year since, so ***that in 1917*** it has taken the place of all former printing processes, because it has the brilliancy of platinum, and delicacy of carbon—and in the Enlarging grades all of the above mentioned qualities with speed almost equal to Bromide paper.

CYKO is the single and universal expression of photography today

Ansco Company

Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

Entered at the Postoffice in San Francisco as Second-Class Matter. Copyrighted, 1917, by Camera Craft Publishing Co.

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Expirations—Subscriptions to Camera Craft are discontinued on date of expiration. The date on the address label on the wrapper shows the time to which each subscriber has paid. Thus: Nov. 09 means that the subscription expires with the number dated November, 1909. ¶**Renewing**—In renewing a subscription, do not fail to say that it is a renewal, giving name and adddress just as now on the address label. ¶**New Address**—In notifying us of a change of address, give both the old and new address. Should you miss a copy through change of address, advise us of the fact, and another will be gladly sent. ¶**Dealers**—All photographic supply dealers and news dealers are authorized to receipt for subscriptions in our name.

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New Zealand . . . . Waterworths Limited, 58 Queen St., Auckland
New Zealand . . . . Waterworths Limited, 286 Lambton Quay, Wellington
Philippine Islands . . . . . Squires, Bingham & Co., Manila
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Our Finishing Department

WE have a complete, modern and thoroughly equipped department for developing, printing and enlarging. No expense has been spared to make the equipment so good that, with the skilled workmen in our employ, we are able to guarantee the best results that can be obtained.

Send your films to us and experience the satisfaction of receiving the best negatives, prints or enlargements that it is possible to obtain.

HIRSCH & KAISER

218 POST STREET SAN FRANCISCO

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV JULY, 1917 No. 7

Poetry and Photography

By Sigismund Blumann

Illustrations by Dr. Percy Neymann and the Author

Somewhere in America, in the recesses of one editorial desk, rests an article of mine on a subject and with a title very like the above. It has plainly been forgotten, which is worse than rejected, and this is a determined effort to reclaim what perhaps is not worth the pains, from oblivion. Allowing for egotism, there really remains something that warrants a consideration of how pictorialists may add one more pleasure to their productions; sometimes even put a value where little existed before.

Pictures should carry their story. Granted. Yet great artists have not disdained to take an event from history, a line from a poem or a whole poem, an incident from a romance, to furnish their inspiration. With every liberty of conception, idealization and execution at their disposal, they need only technical skill and genius. They can put their very dreams onto the canvas.

The photographer having technique and genius, needs material. The plate registers only what is before the lens. Dreams make no impression even on the Ortho-Panchro-Poly-Sensitive emulsion. So it remains that the greatest pictorialists grab a bit of landscape or set a naked woman posing, out of all that nature affords, and have such a picture as they can make of one, two, or more negatives combined ingeniously in the printing. They may claim, ever so warmly, that what they show is just what they aimed to get, and that it was planned just that way, but the fact is that they never could have told in advance just what the title of their finished picture was to be. Does this demean their art, or their talents? I think not. It does, however, add one more charm to their vocation. For, having filched one bit, one mood, one

emotion from the richness of creation, they have the pleasure in store of seeking to understand what it is they have captured, and so to pass on the information to us who view the result.

Now, language is the most natural means of mental intercommunication of civilized man. And poets have the most sympathetic method of using language. Therefore, since it is seldom possible, if ever, to illustrate a verse—let us say—without evidence of straining, why not search in the rich field of English literature for lines to fit the picture? Why not even dare to make verses for onesself? The gift of versification, often the gift of poesy itself, is not as uncommon as is thought. Men who have studied composition, and technique and speak learnedly of tones, planes, perspectives, and so forth, are of a material to master prosody.

Such home-made poetry need not be great. It merely need express in words what the artist would have the picture convey, only to a more definite degree. The picture and the lines lend one another a reciprocal value. Of course it is to be understood that men who cannot drop into song without offending the ear or exciting a laugh, should look to others for the singing. They need not look far or long. Chaucer to Kipling, chronologically, and Shakespeare to the Poets' Corner of a country newspaper, intrinsically, not to speak of the ready "Theasaurus" and "One Thousand and One Quotations," offer the readiest of sources. Libraries are everywhere. God, no doubt, made writers, but Carnegie made libraries.

After the foregoing, I am conscious of stupendous conceit in offering verses of my own making, but since I have essayed the subject, it is incumbent upon me to show that however indifferently it be done, it can be done.

A SEED FOR A HERO

On a Picture by Doctor Percy Neymann

On a desolate field where the inert sod
  Is glutted with blood from the veins of men,
Where rocks ooze with tears and each unwatered clod
  Is soggy with gore, a woman kneels; And when,

As the last rays of sunset ensanguine the scene,
  The world for a moment is silent, at rest,
She plants a warm seed in a last spot left green—
  A seed of white-rose that she plucked from her breast.

A seed for a hero—any hero, you know—
  And the woman is womankind, left to grieve.
Men fight and die, and are done, as things go,
  While women plant roses in the deserts men leave.

Doctor Neymann had no idea of a battlefield when he made this study from the nude. Several keen judges have confessed they missed the care and sorrow in the woman's face before reading the lines. I could see no justification for an undressed lady in such inhospitable surroundings before writing

"A SEED OF WHITE-ROSE SHE PLUCKED FROM HER BREAST" By DR. PERCY NEYMANN

the verses. If the picture can only be accepted as justifying the poetry, and it is fine enough even for that (the picture, not the poem), let me hope the idea or two in the text will be found to justify the nude woman in a place so forsaken as to offer no admirers of her charms.

TO CHILDHOOD

On a picture of Vera H——. Made in a garden.

Oh blessed youth! When from the enchanted page
Fancy stepped forth and made the unreal real,
When from behind the moondipt bush
Titania floated in a silver haze and greeted me!

* * * * * *

Only to children is the magic power given
To see what coarsened elder eyes can never see:
To hear the fairy music that may never be
For the mature. When by the moon the night is riven
And the stars upon a lilac sea sail free,
Amid the dark, portentious, shadowy hush
There then be happenings only children feel
Which are denied the senses of my age.

* * * * * *

Sweet childhood which may never more be mine:
Whose spirit yet can animate my heart,
My song to thee I dedicate. Be this a part
Of what Time offers at thy heaven-kist shrine.

The picture of the child, used as a frontispiece, was made as an outdoor portrait of my eldest girl's school chum. She was costumed for a pageant and we all wanted a memento of the charming vision she made in our garden, among the green plants. As the maker of the picture I must confess it has charm, the charm of a pretty child, of grace, and rather romantic surroundings. Do not the lines give that much more value?

A certain professor of strictly Teutonic temperament once gave a lecture on his travels when he returned to his classes. At the close he said, "Those who wish may now come forward and shake me by the hand". With more conscious conceit let me say that if I have been able to do so well, think what you could do yourself or find ready done in volumes of Scott, Tennyson, Wordsworth. At any rate why not try. When you give your friend, or sell him, or even give or sell your enemy, one of your pictures, why not give him a taste of literature for good measure.

Even now in the full whirlwind of this most gigantic struggle art work is very likely being produced which, in the sum of its ultimate effect on mankind, will outlive and outweigh the total net result of that struggle, just as surely as the work of Euripides, Shakespeare, Leonardo, Beethoven and Tolstoi outweighed the net result of the Peloponnesian, sixteenth century, Napoleonic and Crimean wars.—GALSWORTHY.

CEDAR TREE THAT SPLIT THE ROCK—Used in article entitled "Roots and What They are For". Such stories, of course, require the reading and study of scientific works treating of the subject in hand.—Illustrating article opposite

A Pleasant Road Withal

By William A. Bixler

With Illustrations by the Author

A number of years ago I sat conversing with an old veteran of the photographic fraternity, while he showed me some specimens of his work that had won gold medals from the different salons. I looked at the pictures with much admiration, then remarked: "It had always been my ambition to become a good pictorial photographer". The good old veteran sat still a moment,—and I imagine he was taking a kaleidoscopic view of his years of successes,—and failures, and then slowly remarked: "It's a long, rocky, road". While I am not, as yet, acquainted with its entire length, and must admit that I have bumped a few of the pebbles, I cannot fully agree with his dictum.

Having followed the printing business since a boy, photography has been somewhat of a secondary matter with me. During the summer of 1900 I spent my vacation in the Rocky Mountains of Colorado, and at the same time started on the photographic road. My first camera was a 4x5 Adlake, recommended to be "fool-proof". Anyone who has ever used one of these cameras knows that, with its fixed-focus lens and its time-and-snap shutter, he can take a picture

MY FIRST PHOTOGRAPH—In early days a band of stage robbers who took refuge here, were surrounded by armed men and forced to surrender a few days later

ARTESIAN WELL AND IRRIGATING FLUMES—These were used to illustrate articles on Artesian Wells and Water Supply for Irrigation. These told of source of water supply in valleys and mountains and methods of carrying it across the plains for use

in good daylight if he will only point the camera at the object and push the button.

With a bride of about two weeks, I drove to the mountains one Sunday and there made my debut as a photographer. I exposed a dozen plates that day; and, upon developing them, found I had at least gotten some kind of an image on every one, a record that I have since failed to retain. My "vacation" in Colorado lasted four years, during which time I found and photographed many peculiarities and customs that were not a part of life in the states farther East. I imagined that many Eastern people were as interested in typical Western subjects as I was, so I was constantly on the watch for characteristic views and did not stint myself in the matter of plates.

As time went on a representative of one of the largest papers in the state came through our town collecting data for an illustrated edition dealing with that section. As it happened he was soon referred to me as the man who "took pictures". Showing him what I had, he selected about a dozen local scenes and advised me that I would get the credit of having taken the pictures as my remuneration.

That was the start. Mr. Kirkland, who was then president of the International Photographic Association, lived in Denver; and, seeing my name under

A FEW ROCKY MOUNTAIN SCENES—Taken on a camping trip. The first shows a bridge built entirely of poles. In second notice man standing on crest of cliff. The other two are views of Clear Creek

the reproductions, sent me some literature, concerning the society. I soon became member number 504, a number I have ever since retained. I wrote Mr. Kirkland and asked him so many questions concerning salable photographs that he forwarded my letter to Mr. Clute, whose kindly interest was, and has ever since, been appreciated. I early got in touch with some of the best workers in the association, as my Colorado views seemed to be most acceptable to them in exchange for their own best work. These prints and those in the circulating albums were inspiring and I studied them carefully. This and my correspondence with the members enabled me to raise the quality of my own work to a higher standard. I, for one, can say that the benefit derived from the circulating albums and the exchange of prints with individual members, can hardly be over-estimated. In two years I acquired a collection of about fifteen hundred prints, many of which were of the highest quality. I, of course, became a subscriber to CAMERA CRAFT, and have taken it ever since; the bound volumes being among the most prized in my library. I did a lot of reading and some thinking, and to the best of my ability, put in practice the good suggestions given in the pages of this magazine.

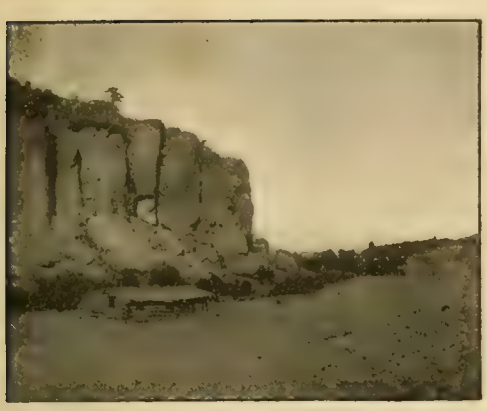
I studied the subject and gave much thought to the placing of my objects, to the arrangement of the composition and the distribution of the light and shade. I had a peculiar fondness for the making of views that were a little

out of the ordinary. While some of the subjects were, to me, of a rather commonplace nature, I found that to many people they were most interesting. A few of the subjects that were salable were: A flash of lightning, a landscape by moonlight, clouds in the direction of the sun, views taken during heavy rain, artesian wells in summer and winter, irrigating canals with ditches and headgates, snow-storm raging below Pike's Peak, Western farming operations, such as harvesting and threshing, Western "shacks" and tents, camp life in the mountains, pack trains, prairie schooners, broncho busting and racing, peculiar rock formation, trees growing on rocks and wild animals and birds.

After returning to the East I submitted a collection of my prints to a young people's paper that was running a department called "Wonders of Nature". I noticed that the articles they used were only occasionally illustrated with photographs, and this inspired me to send in what I did. To my surprise, not only were a number of my pictures accepted, but I was asked to write descriptive matter concerning some of them.

Papers published in the East seemed to be desirous of securing photographs depicting typical Western scenes, those showing Western characteristics and peculiarities. While such publications as bought of my pictures did not pay a fancy price for them, the profit derived helped out wonderfully. As the checks came in each month I felt well repaid for my small effort, especially so since many of the negatives were made years before and for my own enjoyment. I have had the pleasure, and profit also, of seeing over three hundred of my prints reproduced in various publications; and, when I was asked to submit some of my photographs to be used to illustrate a book, because "they were original and illustrated the point," I concluded that perhaps, after all, my efforts had not been in vain or that the road was so rocky as my veteran friend seemed to think.

A DAKOTA SOD HOUSE STILL IN USE—One of a number illustrating a story entitled "The Houses of the Plains", in which were described, as a result of personal experience, both interiors and exteriors, forms of construction, methods of heating and the like.



AN OLD STAGE RELAY STATION AND A CAMPING OUTFIT ON THE UPPER RIO GRANDE—Used in a story, "The Old Santa Fe Trail", in which a camping trip over the old stage road was blended with a description of pioneer days

I have never been able to formulate a set of rules that would apply in every case, in approaching editors and publishers with photographs. Editors, like any other class of men, are human, varying in their individual likes and dislikes as they do in their facial expressions. I might, however, set down my own method of procedure, but the reader must not understand me as claiming that the following of my plan will assure success.

My prints are always made on glossy paper, and on the contrast kind if the negative is at all flat, as these are easier to reproduce and make better engravings. When only a small number are sent, they go with a letter; but when a larger quantity are to go forward I send by parcel post or express. In all cases they are sent flat and unmounted, never rolled. With a rubber stamp I put my name and address on the back of each print to insure against loss. If only a short description is needed I write that also on the back of the print, but if more data seems advisable I give the picture a number to correspond with that on a small separate sheet bearing the description, this last being attached to the picture by means of a paper clip.

The first used with a story dealing with the obtaining and treating of the raw material used in the woolen industry. The other illustrated an article on the less modern farming methods still in use.

I like to send direct to the editor, and always do so if I have learned his name, adding the name of the magazine as part of the address. If the editor's name is not known to me I use the words, "To the Editor" in place thereof.

Some photographers that I know make a practice of sending quite a collection of prints embracing different subjects, and quote a fixed price of one dollar each with privilege of using in one magazine only. Some workers charge two dollars a print, while still others leave the remuneration to the editor. Personally I consider it good practice to set a price, although this should not be made an infallible rule. Some publications pay more than one or two dollars, generally for pictures that they particularly like. On the other hand, some editors prefer to know just what the photographers require in the way of payment. With my pictures I send a letter something like this:

"To the Editor, Up-to-the-Minute Magazine,

"Busyville, N. W.

"My Dear Sir:

"I am sending you in today's mail six 5x7 photographs that may interest. Descriptive data accompanying each print will give the necessary information, but in case a more detailed description is desired I will gladly furnish you with it. If suitable for your magazine, you may use any or all of them. The price is one dollar for each photograph. I enclose stamps for the return of any you do not find suited to your needs.

"Thanking you, I am, "Yours very truly."

If the matter of remuneration is left to the editor, I word the letter thus: "If any or all of these photographs are suited to your needs, you may make payment in accordance with your regular rates, or according to merit."

One thing I have found to be quite essential in submitting photographs to publishers, and that is, to first find out, as near as possible, about what kind of pictures are wanted. This is best done by making a careful study of the illustrations used in their individual publications. Then select such prints as are thought similar, and, if they are satisfactory and meritorious, send them on to the editor. Many times we can save ourselves the disappointment of the returned packages by a little care and study along this line.

As a rule, editors return photographs and manuscripts without saying whether they are too poor, too good, too small, too large, or otherwise unsuited, much as we would like to know just wherein they fail. But, by making a study of the pictures actually used by the publications one has in view, and by not allowing oneself to become discouraged by a few failures, success may result. In no other business have I found it more necessary to put into practice the old adage: "If at first you don't succeed, try, try again". And still, after all, most editors judge photographs according to merit, merit based on readers' interest as well as on photographic excellence.

What is wanted in a work of art is an unforced, natural, adequate correspondence between fancy and form, matter and spirit, so that one shall not be distracted by its naturalism, mysticism, cubism, whatnotism, but shall simply be moved in a deep, impersonal way by perception of another's vision.—GALSWORTHY.

Exposure Problems

A Dollar's Worth of Advice

With an Illustration by the Author

"Dear Sir:

"I want to ask your advice about time exposures. I have had a camera a little over a year and have good success with it, making snapshots. But the few time exposures I have tried have been mostly failures. I realize that a snapshot of an outdoor view on a dark cloudy day is doomed to be a failure from under-exposure, but when I attempt a time exposure I am all at sea. I don't know how long an exposure to give. The same with interior views. If you can clear away these perplexities, I'm sure it will be worth the dollar fee which I enclose.

"Yours very truly,

"A———————— B————————."

"Dear Mr. B————————:

"If I could solve all your exposure problems in detail within the space of a thousand words, I should be more than earning your dollar, I should qualify as a magician. But perhaps I can be of some assistance.

"Are you sure you can tell the difference between correct exposure, under-exposure and over-exposure, by the appearance of your negatives or prints?

"Correct exposure gives a negative and print which represent the lights and shadows and halftones of the view in their proper relation. Under-exposure gives a negative in which the dark parts of the subject are too nearly transparent and lacking in shadow detail. The print from such a negative shows the whites as white and the blacks as black, it is true, but the halftones are too dark and tend to run into one mass of blackness. Over-exposure, on the other hand, gives a negative in which the dark parts of the subject are too dark, and very full detail all through the shadows. The print from such a negative will also show the whites as white and the blacks as black, but the halftones will be too light. Judge by the halftones and shadow detail. Under-exposure results in a print with halftones too dark and an absence of shadow details. Over-exposure results in a print with halftones too light and a superabundance of shadow details. Under-exposure fails properly to record the dark portions of the view. Over-exposure fails properly to record the light portions.

"You have been successful with instantaneous exposures, 'snapshots', of sun-lighted outdoor views. The exposure in these cases, then, must have been approximately correct.

"What is the speed of your snapshot, what fractional part of a second? The shutter may have a marked speed of one-fiftieth second. But it will be hardly safe for us to assume that this is the actual speed, because the speed markings of shutters are noted for their untrustworthiness. A rough and

ready shutter speed tester, but one that is sufficiently accurate for our purpose, is the revolving wheel of a bicycle jacked up off the ground. We first measure how far the wheel will travel with one revolution of the pedals. Then by turning the pedals say twice a second, when the wheel is jacked up, we can calculate what fractional part of a revolution the wheel will make in one-fiftieth of a second. Here is your shutter speed tester practically complete. All that remains is to set it up in front of a black background, fasten a small white object to the rim or tire, turn at the predetermined speed, and shoot away at it with your camera. You will soon learn something definite about the actual speed of your shutter.

"What is the largest opening in your lens or shutter? The two common systems of numbering lens apertures or 'stops', are the U. S. and F systems, here set down with the equivalent openings one over the other, and below each the relative exposure:

F stops	4	5.6	8	11.3	16	22.5	32
U. S. stops	1	2	4	8	16	32	64
Exposure	¼	½	1	2	4	8	16

"F-8 or U. S. 4 is generally the largest aperture for a rectilinear lens, and it is usually so designated on the shutter. Inexpensive fixed-focus cameras are fitted with single lenses the largest opening of which is about f-16. The fixed-focus cameras usually have one or two smaller lens openings, not numbered by either U. S. or F systems, but of such a size that each opening demands twice the exposure given with the next larger one.

"Let us say the tests show your snapshot that gave good results to be one fiftieth second at an opening of f-8. This exposure, which you have proved to be approximately correct under certain known conditions, will be a standard from which to calculate exposures under other conditions.

"If one fiftieth second at f-8 is right for a view in bright sunlight, what will be the correct exposure at the same hour of the day for an outdoor portrait in the shadow of the house? You would judge perhaps that four times the sunlight exposure would be right. Very well. Four times one fiftieth is four fiftieths or approximately one tenth. You want to give an exposure of one tenth second, and probably as quick a 'bulb' exposure as you can give will not be very far wrong. Try it and see what result you get, using, of course, a tripod or some firm support for the camera. A slower pressure of the shutter release on 'bulb' will give about one fifth second. If you have not a very good idea of how long one fifth second is, observe the movement of the second hand on your watch. It jumps along, five jumps to the second. One fifth second at f-11.3 or U. S. 8, is equivalent to one tenth second at f-8 or U. S. 4.

"Now experiment for yourself on all sorts of subjects under varying conditions of light. You will gain experience and ability to judge the conditions which govern exposure. Knowing the actual speed of your shutter and the relative exposures at different openings gives you a definite foundation on which to work.

"You will find exposure tables published in photographic books and magazines, and these will help you. Better than all the tables ever published is an exposure meter that uses sensitized paper. It actually measures the actinic

IMPRESSIONISTIC—A soft focus enlargement, made with a semi-achromatic lens, from a sharp focus small roll-film negative

intensity or photographic strength of the light, and thus indicates the proper exposure to give. With a meter you will be surer of the right exposure than a photographer of twenty-five years' experience would be if he depended wholly on his judgment.

"Here is a summary of my advice to you: Learn to distinguish unerringly the effects of under-exposure and over-exposure. Find your actual shutter speeds. Know the relations between the different lens apertures. Use an exposure meter.

"With best wishes for your success,

(Signed) "CHARLES F. RICE.

"Mamaroneck, N. Y., May 7, 1917."

Mr. Clausen said lately in one of his Academy lectures: "The development of painting has been a gradual progress towards the knowledge of light, and how things are revealed by it." Such, in fact, is the main tendency of modern art, and while the painter pursues this quest, the photographer has even more reason to do so, for it leads him to the source of all that he can achieve. "Chardin," says Mr. Clausen, "gives us a loaf of bread, a bottle, glass and knife, so finely seen, or rather the beauty of their appearance as expressed by light is so finely shown, that the little picture outweighs many of far greater pretention." —ANTONY GUEST.

Composition For Amateur Photography

By L. S. Scharf

With Illustrations by the Author

If you are a progressive amateur photographer and have mastered the mechanical operations of your camera and acquired some mastery over the technique of working plates and paper, you have, no doubt, become dissatisfied with the making of random snapshots. At this stage you feel the need of some knowledge of pictorial composition, to make your pictures more pleasing. You may easily learn to time your exposures properly with your own particular lens, if you have a good memory; or better, a ready note-book and a busy pencil, recording size of stop, date, hour, light condition, and nature and distance of subject. A good exposure meter will help, but care should be taken that it is not used as a crutch and thereby prevent your learning to walk. Exposure mastered, you are ready to turn your attention to the improving of your photographs pictorially.

Composition, as applied to pictures, is an elusive, intangible term. The photographer is somewhat handicapped in trying to compose his pictures as compared to the painter who may leave out objectionable features, add needed ones or otherwise make his pictures conform to his requirements. The photographer by reason of the camera's fatal truthfulness, is more restricted in his selection. If a given view does not compose well he can only pass it by, with regrets. But any locality furnishes so many good arrangements of inter-

SEPTEMBER'S GOLDENROD

THE PATH OVER THE HILLS

esting subjects that only a lack of understanding, or want of a trained taste in composition need excuse the photographer in making the other kind. The photographer with a knowledge of art principles, no matter how elementary, can use it to great advantage in selecting his subject, in choosing the point of view or position of his camera, and in determining just how much or how little to include in his picture. Doing these things, the scene photographs may quite properly be called a composition.

Most of the terms used in treating of composition are difficult of explanation and are variously interpreted by different artists, judging from their work. All the rules are, apparently, often disregarded or ignored in the pictures that they produce. The beginner, trying to be artistic by rule, is bewildered by the variety in the treatment employed by the painters who seemingly delight in ignoring the old time rules and diagrams with which we were wont to analyze their work. The triangle, the wheel, the steelyards, etc., are applicable only to a few of their compositions. Only the lower forms of pictorial arrangement depend on rules of radiation, spacing, or geometrical diagrams. The higher forms are concerned with proper distribution and proportion of lines and values, with harmony of parts balanced in relation to the dominant object or to the whole.

A study of paintings and a memorizing of the placement of masses in those most liked would seem the better way to acquire that "feeling" that tells you when your picture is right. Next to sketching from nature there is no better way of cultivating an artistic taste than to carefully study and compare with such memorized pictures the subjects that come before your camera. Such consideration is well worth while acquiring, as a habit, for it will add

greatly to your enjoyment and appreciation of nature as well as to your art understanding and judgment.

One of the best means of acquiring a knowledge of composition is to study pictures of the masters of landscape painting. The half-tone reproduction will answer and is accessible to all. You might observe the values in a painting and then try to find a scene with the same general masses and lines; but this is not quite practical, despite the wide variety of both pictures and scenes available. You might take a large number of reproductions of paintings along on a camera trip with the idea of finding similar compositions in nature; and, so doing would, unquestionably, have no small educational value. You need not expect to find exactly the same disposal of values, but just enough similarity to cause a good judge to say, as one did in the case of one of my compositions: "That reminds me of an Inness", or of Redfield, or some other painter, as the case might be.

It is not suggested that the close imitating of a given composition is a high form of photographic art, but attempts in that direction are good practice for the tyro. This I know by personal experience, and an amateur whose pictures are much admired by artists practices this plan to no small extent. You need not be ashamed to acknowledge such masters as Corot, Inness, Redfield, Tyron and others of their class. You will, with this kind of study, in due time no doubt, be able to go out and choose a scene and point of view for your camera such as a painter would select in determining upon a subject for his brush.

When you come to apply instruction in pictorial arrangement you will learn how unsubstantial and almost futile, rules of composition are, for there are

THE STREAM THROUGH THE LOWLANDS

LOOKING ACROSS THE RIVER

few if any that the skillful artist does not at times disregard. There are, however, some few of the more generally applicable that you should understand and observe, at least at first, in order to have some definite basis for the beginning of your study.

One of the most pleasing forms of compositions, and also one of the most simple (and as a rule the simplest is the best), is to have the placement of the chief object a little to one side and a little above or below the center of the picture space. But be sure that the object so honored is worthy of being made the dominating mass; that is, it must have interest and character. Thus, a clump of young oaks will not show the characteristic of their species as will a colony of goldenrod, as shown in the picture above. Again, if the major portion of the principal lines lead the eye to the subject or principal point of interest, you may be sure the composition is not without merit. At all events, lines leading out of the picture or away from the chief interest are detractions that minimize the pleasure the picture is expected to afford. The principal object, as a mass, may take up the greater part of the picture space; or, if the surroundings are harmonious, that is, of kindred interest, it may be smaller.

Lines that converge toward the point of interest cause little trouble and are easy to handle. Lines running parallel to the edges of the picture or to each other, are more difficult, requiring to be broken up or harmonized by opposing lines. No matter how nicely the lines lead the eye into the picture, if there is nothing of interest at their focal point, the composition will not be good. Our last picture illustrates this point.

Another agreeable arrangement is that taking the form of a vista, as a view seen through an opening between trees or along a street. If the sides are somewhat dissimilar and there is a variation of mass, as well as of light and shade, this form of composition is generally quite satisfactory. The reproduction, The River, Through the Trees, is an illustration in point.

No season of the year or hour of the day, no mood of nature or weather condition but what some scene is at its very best, pictorially, and most subjects in sunshine are more picturesque in connection with the long shadows of early morning or late afternoon. It should, however, be our pleasure to know under what conditions the subjects near at hand are most suitable for a picture. The way in which the shadows fall may make or mar the composition, the brilliancy or lack thereof, of the lighting, may do the same. The warm sunlight, the passing storm, the clear sky, the foggy atmosphere, each adds its peculiar charms to some particular landscape.

There are a few "dont's" that you will do well to observe, at least until you have had enough experience to know when they, with the exception of the first, may be safely ignored. At first they are not to be neglected, but after a time you will have had practice; and, feeling more sure of your judgment, may at times disregard them.

Do not photograph trivial or merely "pretty" subjects. Aim to have each picture show some character or tell a story that will appeal to the beholder. Do not, and this is a very common fault, include two or more pictures in the same composition. Neither should there be two masses of the same size and importance or two distances of equal scope and interest to divide the attention. There should be one picture shown, one story told; in other words, concentration. If too much is included in the ground glass or in the finder, use a larger focus lens, move the camera nearer to your subject, or trim your prints.

Do not have the picture space divided into two or more equal parts by strong lines, and do not have three or more objects of similar size equidistant apart or two such objects equidistant from their respective edges of the picture space. Your observation of the first part of this rule will properly place your horizon lines either above or below the center of your picture. Do not have a combination of lines approach any simple geometric figures, and do not have like objects, as three faces, either forming a triangle with equal sides or arranged in a straight line. Do not permit mechanical symmetry in your important lines or masses, making the two sides of the picture alike. In picturing a street or roadway, for example, keep the camera away from the center and have one side in shadow and the other in light. And lastly, and most important of my "don'ts"; do not photograph a scene with the sun directly behind the camera. It requires a light from the side to give shadows and shadows are an all important part of any picture. It is about as difficult to make a picture without shadows as it is to paint one with only white pigment for your brush.

There are a few other points that I might touch upon if I may do so without appearing to lay down rules for your guidance. And I might suggest a method of applying these last that is also applicable to the above list of "don'ts", and that is this: Take, individually, each of these precepts, suggestions, or what you will, and going over any collection of good pictures or reproductions that you may have available, and observe how closely they conform, practice with precept. And where there is a variation, a departure, try and study out the reason therefor. You can, if this method of testing out the rules that are given you seems worth while, easily compile a collection of pleasing landscapes,

BARREN LANDS

FERTILE FIELDS

perhaps in simple scrap-book form, by clipping suitable reproductions from magazines and the like.

For example, it is practically impossible to compose a pleasing landscape without having a foreground, a middle distance and a distance. Take this precept and go over your collection of reproductions and see just how universally the rule is followed. Where there is a departure, ask yourself if the result is still pleasing, and if so, just why the departure is not objectionable. You may find, perhaps, a picture showing some trees, rising from an eminence in the middle distance, or even the foreground, with no distance except the sky in evidence. And yet the picture is good. The reason is that the interest, the charm it holds, lies in the pattern or the design formed by the trees against

INDIAN SUMMER

DREARY WINTER

the sky. In other words, either the spacing is pleasing and interesting or the tracery of the branches is characteristic and charming. Such a subject pleases the eye for another reason than does the average landscape; in fact, it should really be classed as a decorative design rather than a landscape.

A few other precepts may be given the same sort of testing out by the examples making up your collection. Take the one demanding that the contrasts be more marked in the foreground than in the distance where the intervening atmosphere causes a softening of tones. Observe that bare and empty foregrounds are objectionable. Examine your collection to see how skillfully the interest is concentrated within the picture space so that there is no desire to see what is not included. In other words, there is no feeling that the boundary lines of the picture space, the edges of the print, deny us anything that we would wish to see.

This last you can best exemplify by imagining that the boundaries of the picture are the sides of a window through which you are looking at the scene pictured. If that portion seen is not satisfactory you would feel impelled to move your head to one side or the other, perhaps come closer to the window in order to see more at each side, possibly with a desire to see more of the foreground. If there is any such inclination the picture is not right.

And above all, do not allow yourself to become a slave to any rule, particularly without a full understanding of what it implies. I know a worker who, realizing that the tendency of the camera was to give him entirely too much sky and realizing also that the beholder of a scene rarely concerned himself with the tops of the trees, ruthlessly trimmed the tops of all his landscapes. In a majority of cases he improved his compositions thereby; but, when he came to a landscape that breathed the charm of the open country, that carried the feeling of "all outdoors", his trimming away of the sky destroyed just the effect that he sought to portray, the effect that inspired him to make the exposure.

You can, to your great advantage, study the examples you have collected without any particular rules in mind. Observe how one artist has, let us say, introduced a small dark mass near one side of his picture. Ask yourself why this was done and seek through other like landscapes for the answer. Did he do it in order to balance a large mass of a lighter tone, did he intend it to contrast with a small light object adjoining and thus create a focus for the eye at that point, or for any other reason? It was not done aimlessly you can be quite sure.

In my own early photographic days I was told to study the work of the artists, the old masters, but I was not told how. This last I had to work out for myself; and, with a hope of helping others, the above has been written. With this apology I will bring this article to a close, regretting that to go on further would exceed the space that I might hope to find available.

Two forces guide our material and intellectual life. We possess two means of acquiring knowledge and of practicing art; reason and experience. Impressions from without are the everlasting source of all our conceptions.—G. G. Zerffi.

The Indian Mother's Grief

By L. C. Read

With Illustration by the Author

I was sitting at my table spotting, when I heard a knock. In response to my "Come in!" an Indian of some forty-five years entered and was motioned to a chair. It is etiquette with the Indians, not to be in too much of a hurry on such an occasion. I waited for him to state his case, which he did, after a few moments, thusly: "You know Jim Jackson? Him little child dying; he want to know if you come take him picture?" "Yes, certainly." "Me be back in ten minutes, go up to hospital, see doctor."

In ten minutes I was ready with my camera and silently followed my dusky guide to Indian Town. There I found a young Indian mother on the front step of her cabin, vainly trying to induce a little fellow she held in her arms, to eat something. "Him no eat anything for four days; think pretty soon he die," was the simple statement made.

THE INDIAN MOTHER'S GRIEF

The Indian mother, knowing of my errand, at once took the child inside to put on its best clothes; her face showing but a faint trace of the grief she felt. But for her forehead, and that only, one would hardly have discovered any indication of grief or anxiety in her expression. I busied myself setting up my camera in the open, semi-sunshine of the April morning, and soon the mother reappeared with the child attired to her satisfaction. An older boy threw a squirrel skin robe over the back of the chair, the mother sat down, moved the little subject to a comfortable position and tried to induce him to show more animation than his low state prompted. I asked her to be quiet, and then, after focusing, tried myself to attract the attention of the little one in order to secure, through his eyes, as great a semblance of life as possible. The little hands would clutch involuntarily at the mother's hand, the little eyes would open nervously for a moment, the grim reaper was all but in possession, the end was not far distant, the little form would soon be free from pain.

I ceased my efforts to attract the attention of my poor little subject; I was in the presence of Death. I watched for the moment when he was as much at rest as could be expected, and then made the exposure. Not a word was spoken;—not a tear was shed by the young mother, not a word or sound came from the little sufferer. During all the time there was only the mother's hard, drawn, sorrowful expression about the forehead to indicate the grief that she felt. This example of fortitude, although perfectly natural on the part of an Indian mother, was a lesson never to be forgotten.

That was yesterday. Today a man next door is making a simple little coffin. I know who it is for, I ask no questions, it is not necessary.

An Extraordinary Experience

By Edward J. Wessels

With Illustrations by the Author

It is seldom that photographs can be made to record personal experiences of greater interest than do the two that I am sending herewith. These are from negatives exactly as they were developed shortly after the exposures had been made. Myself and family, then touring Italy, embarked, the morning of August twenty-second, aboard the little steamer at Locarno for a trip on Lago Maggiori.

The day opened oppressively warm. The breeze was like air from the door of a furnace, devoid of life or coolness. At 8:00 A. M. the thermometer registered one hundred and twenty degrees Fahrenheit; and, under a cloudless sky, the heat grew more intense, driving the passengers into the cabin as they could not remain on deck. By noon it seemed as if the mercury could not rise higher. An hour later, after leaving Isola Bella, a hurricane arose without the slightest warning. The winds seemed to blow from all quarters and

with such force that our light-draught boat was tossed so roughly it was feared she might capsize. Torrential rains began to fall and the oppressive heat abated.

Presently, hailstones, as large as walnuts, fell fast and furious. One struck my finger nail with such force that it turned black and blue, the discoloration disappearing only after I reached home several months later. The hail continued to pile upon the deck while the water rose in waves that, aided by the

HAILSTONES PILED UP ON THE DECK

blasts, nearly caused our craft to turn turtle. The frightened passengers, most of them panic-stricken, all crowded to one side of the boat. The captain, appalled by the situation, lost his head, while the vessel fell off her course and was helpless in the trough. A passenger, more cool-headed than

THE SEA UNDER A RAIN OF HAILSTONES

the rest, compelled the captain to ring for full speed ahead, and none too soon did the "Italie" head for the nearest port. After a hard tussle, Stresa was reached; where, in trying to make fast to the quay, two big hawsers were snapped in pieces. Some of the deck baggage was blown overboard and most

of the remainder was ruined. Then, as we pelted each other with ice balls, I said to my son: "Would anyone at home believe that we did this on a day during which the thermometer registered at least one hundred and fifty degrees?" So I photographed the ice on deck and on the water to corroborate our statements if necessary.

The first picture shows hailstones piled on deck and the other the appearance of the lake as the hailstones descended upon its surface. Had this occurred at night, the trusty Prosch Flashlight Outfit would doubtless have been used. I carried my Autographic Kodak on my tour abroad; and, while I got many fine exposures, these two made, with the only camera aboard, are the most remarkable of the collection.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

MOONLIGHT EFFECTS: Nearly every photographer knows how these are produced, but there are a few who do not understand just how it is done. It is of course obvious that they are not made by moonlight, as an exposure short enough to secure the proper representation of water, which is generally in evidence in the foreground, in motion, is out of the question. The effect is secured by photographing the sun when it is just enough obscured by mist or the thin edge of a cloud to prevent the formation of more than the weakest kind of a shadow of objects in full light. If the sun be too much obscured the effect is lost; and of course, pointing the lens directly at the unobscured orb of day will result in a fogged plate. Using stop f-16 and giving about one-fiftieth of a second, or even half that exposure, will generally result in a satisfactory negative.—E. T. R., Washington.

FOCUSING WITH A PORTRAIT LENS: The round or dished field of a portrait lens, results, in the case of a standing figure, in the face and the feet being in sharp focus while the waist is out, or vice versa. A small stop destroys the plastic effect of these lenses and also lengthens the exposure. If the lens will cover the plate when so used, the proper procedure is to lower the frontboard and then swing the back to bring the feet into focus. Doing this one is using only the single curvature from the center of the lens field downward, instead of the double curvature from the center both upward and downward.—D. F. G., New Hampshire.

PHOTOGRAPHING BUILDINGS: Not a few buildings face directly north, and frequently the most desirable results are secured when this front or northern aspect is in sunlight. The photographer who visits the subject during the middle of the day, or even at an earlier or later hour during winter, jumps to the conclusion that that side is always in shade and therefore the building

is incapable of being photographed as it should. This is a mistake. During midsummer he will find that either the early morning or the late evening sun, depending upon the location, illuminates this supposedly always shaded side. Not only that, but a lighting in which the sunlight strikes the front at a sharp angle and from a low position is one that adds much to the charm of the picture, bringing out as it does every detail of the architectural finish by reason of the long thin shadows cast.—E. D. C., Vermont.

USE SLOW PLATES: By mistake I was sent a case of slow plates instead of the fast ones of my favorite make. Rather than return them I decided to use them as opportunity presented. And the opportunities presented much oftener than I ever imagined. Better still, I find them very satisfactory and believe the average quality of my negatives has improved by their use. There is less danger of incorrect exposure, they seem to develop up more uniformly good, and the printing quality is either better than that of the fast plates or else it is secured with less trouble; perhaps both.—T. G. B., New Mexico.

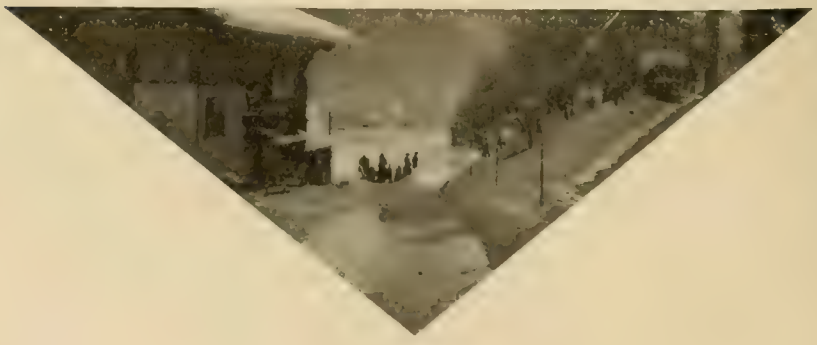
LATITUDE OF EXPOSURE: Despite the fact that developing paper has much the same character as plates and films, one should not assume that it has an equal amount of latitude in exposure. A good plate or film can be given one-half or double correct exposure and yet produce a quite satisfactory negative, but a variation of more than ten per cent from the proper exposure for a print on developing paper is quite sure to be disappointing, despite the fact that quick transfer to the fixing bath may stop development from going too far if the exposure was too long. A properly exposed print will develop up to the right degree of density and then practically stop, without any removal from the developer. Make such a print and then compare it with the best you can do with an increase or decrease of one-fourth the correct exposure so found, and you will agree with me as to the importance of correct exposure of developing paper.—W. E. R., Tennessee.

KEEPING TRACK OF MOUNTS: Like all other professional photographers, I use a wide variety of mounts. When some new ones are to be ordered or the stock replenished, it is a business of some time to go through the boxes and determine just what lines are becoming short. This I obviate by a very simple procedure. Suppose I buy a new lot of five hundred mounts or folders. They come fifty in a box, and these ten boxes are piled one above the other on a shelf; the top one is numbered ten, the one below nine, and so on to the bottom one which is numbered one, the date of purchase being added to this last. As mounts are used they are taken from the box at the top of the pile; consequently, I can tell at a glance just how many I have on hand of that particular kind, at any time, and I can also tell just how fast they are being used by observing the date of purchase on the bottom box. Suppose that three months later I find there are four boxes on the shelf. This shows me that I have two hundred of these mounts on hand and that I have used three hundred of them in the past three months. When all are marked in the same way it becomes but the work of a few minutes to determine just what should be ordered and how many of each particular kind.—A. S. D., Florida.

WORKING ON THE GLASS SIDE: Mix equal parts of a two per cent solution of celluloid in amyl acetate and best denatured alcohol. Flow this over the back of the negative, allowing it about two minutes in which to dry. This, while perfectly transparent, takes the pencil or stumping-powder well, and the work can be observed as it is put on. Furthermore, being the thickness of the glass away from the surface of the paper, the effect is entirely lacking in the harshness that characterizes that done on the film side by the unpracticed hand.—A. S. O., Florida.

ENLARGING FROM MOVING PICTURE FILMS: The worker who has tried to make anything larger than a post card size by enlarging one of these films is aware of the poor results that follow the effort. A plan that I tried recently seems to somewhat overcome the difficulty. I first focus the image upon the enlarging easel just as sharply as I possibly can, then throw it a little out of focus, depending upon the degree of enlargement being attempted, and lastly stop down the lens until the image looks right as viewed with the eyes not too close. I do not know just what the principle is but in my hands this method of working gives me results not obtainable in the ordinary way.—W. E. R., Texas.

DRAWINGS FROM PHOTOGRAPHS: The advice generally given is to go over the photograph with a pen and waterproof ink, then bleach out the photographic image and finally finish up the pen and ink work as thought necessary. I find it a much better plan to make a faint print on bromide or developing paper, then sketch over lightly in pencil the outlines and detail wanted in a sort of tracing, next bleaching out the image leaving the pencil marks to guide in the drawing done, after the paper is dry, with pen and ink. The whole is finished by removing the pencil lines with a soft eraser. The bleaching solution I have found best suited is made up by dissolving sixty grains of potassium iodide and six grains of iodine in a pint of water. In this the image assumes a dark blue tone, and washed for a few minutes and then immersed in a plain hypo bath, it entirely disappears leaving only the pencil lines of the sketch.—F. G. H., Delaware.



CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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What Our Readers Tell Us

Two or three times within the last year or more we have taken occasion to complain that our readers were inclined to leave us entirely in the dark as to their likes and dislikes, with the quite gratifying result that today an occasional letter gives some inkling as to the writer's preference in the matter of our contents. Varied as are these expressions of opinions, they are all helpful and all appreciated more than we are able to express in our letters in reply. Take Mr. Rice's series, for example. One writes that he thinks getting a dollar each for such letters is like taking candy from a child; the information given being only such as the recipient could easily get from a little reading or by writing to the editor or some manufacturer; while the next letter contains a strong commendation of this same series, explaining that Mr. Rice has cleared up several very puzzling questions for the writer. In fact, these specimen letters have inspired several, they tell us, to send Mr. Rice a dollar and their inquiry for photographic information.

But there are some points on which there is more unanimity. It would seem that a department of print criticism is really wanted. It took the explanation of a recent letter to give the matter the right position in our mind; or rather, to give us a clear understanding of what the readers want. This correspondent pointed out the fact that what he would like was not a criticism of his own prints; those were made and done with, in most cases the defects and the reasons therefor being quite plain. What he wanted was criticisms of other prints, just as he would get criticisms of a series of likely subjects were he so fortunate as to have along a capable critic on one of his jaunts afield for pictures. Just as having such a critic available for a camera trip would be instructive and informative, so would the reading over of a number of criticisms of pictures each month be educational and enlightening. We have in mind a gentleman whom we believe is just the one to give us the criticism wanted; and, if he can be induced to undertake the work, such a department will be inaugurated in due time, This, however, will not be allowed to interfere with our own work of criticizing and commenting upon pictures sent us for that purpose, our own letters going forward as heretofore. Pictures intended for criticism in our pages should, when possible, carry full data as to their production, such information, obviously, adding to the value of the criticisms for our readers.

But the vital point brought out is that our own readers at least, like the magazine fairly well as it is. They do not care for elementary instructions such as they can find in any handbook on photography, and while they appreciate articles that throw a little light on photographic subjects in which they are not directly and at the moment interested, they do not care for theoretical

discussions or those so scientific as to be somewhat over their heads, and as these letters of comment come to hand we are more and more convinced that the average photographer is a fairly sensible, practical sort of an individual. If he is using his camera simply as a means of recording places and events, it is a waste of time and energy to try and convince him that photography must be artistic or it is nothing. He may admit that it is well to avoid, when possible, too glaring a disregard for the rules of composition, but he will never allow these rules to prevent his making a record picture when he so desires. If he is a worker who derives a measure of profit from his camera he is interested in the practical experience of others who are doing the same. If he likes photography because of the endless problems that it presents, he welcomes an account of how someone else overcame some of these difficulties. Here and there is a reader who perhaps takes himself a little too seriously and thinks that this magazine should be just what he would best like, but the average reader seems to think that a year's issues are quite sure to contain a dollar's worth of information with not a little entertainment thrown in for good measure. Our thanks are extended to all who have written and we trust they, and others who have not yet favored us, will comment freely upon our contents as opportunity and inclination permits.

Marsh & Company To Enlarge

The store adjoining that occupied by Marsh & Company has been leased and is rapidly being put in shape to be thrown open as an addition to the present quarters, giving our popular Market Street stock house a store of more than double its present size. The steady increase in business has resulted in the old store being much too crowded for the convenience of its customers, to say nothing of the lack of opportunity for properly displaying the extensive line of photographic goods that this house carries. As heretofore, mail order business will be given special attention, the growth of that part of the business being such that special arrangements for its prompt handling are more than justified. We feel sure that the enlarged store will command an even larger increase of business than that regularly enjoyed by this progressive firm.

Lasky's In New Quarters

Lasky's, the popular photographic stock house, formerly of 812 Market Street, this city, has moved to a more roomy and better lighted store at 832 Market Street, a few doors above the old location. In addition to these advantages for handling their ever increasing business their new finishing department has been brought right up to the moment with every modern convenience for the getting out of the best possible work in the minimum time consistent therewith. To make room for an enlarged photographic business, the cutlery department maintained at the old store has been discontinued. We wish them all the success their enterprise deserves.

Nothing is ever done beautifully which is done in rivalship or nobly which is done in pride.—RUSKIN.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

The Use of Supplementary Lenses

A correspondent recently suggested that it would be useful to have a table showing at a glance the effect of adding supplementary spectacle lenses on to ordinary photographic objectives. No doubt such a table would be of use, but, unfortunately, it is not possible to make a very comprehensive one, since the possessor of a photographic lens seldom has the particulars necessary to enable him to make full use of the table. To get exact results we want to know the focal length of our lens and the amount of the optical separation, and the former is seldom known exactly, while the latter varies very materially with lenses of different types, and is a factor that cannot well be ignored. If we add a supplementary negative lens of about 16 inches focal length to a doublet of about eight inches focal length, neglect of the separation gives an answer that is two inches too much, about sixteen instead of about fourteen inches, and this is a material error. It is therefore impossible for any table to be absolutely right. Our correspondent submitted a rough table showing the effect of using a very varied series of supplementary lenses, from one up to forty inches, which table not only ignored separation, but apparently assumed that very short-focus supplementaries could be used with impunity, and also that spectacle lenses of focal lengths in inches could be obtained readily. We fear, however, that no photographic lens would preserve much of its defining power if compelled to work in conjunction with a one-inch spectacle lens, while there would be great difficulty in getting such a lens at all.

For economic reasons it is inadvisable to ask for lenses that are not of stock focal lengths, and spectacle lenses are stocked in powers measured in diopters, not in focal lengths. Thus the request for a forty-inch lens may lead to the supply of one of thirty-nine and two-fifths inches, which is the nearest regular power, or, if the order is taken too literally, to the special manufacture of a forty-inch lens which may cost a good deal more. A lens of a power of one diopter has a focal length of one meter, and the power varies inversely with the focal length, so that a lens of two diopters has a focal length of half a meter. Lenses are usually stocked in powers varying by one-quarter of a diopter, and the following table gives a series which covers all that are at all likely to be required for use as supplementary lenses. The focal lengths in inches are approximate only.

.5 D = 78¾	2. D = 19⅔
.75 D = 52½	2.25 D = 17½
1. D = 39⅖	2.5 D = 15¾
1.25 D = 31½	2.75 D = 14⅓
1.5 D = 26¼	3. D = 13⅛
1.75 D = 22½	3.5 D = 11¼

The table applies to either positive or negative lenses, a plus sign being prefixed for the former and a minus sign for the latter when ordering. Positive lenses are required to shorten the focal length and negative ones to lengthen it. Double convex or double concave lenses are most easily obtained, plano or meniscus lenses generally having to be specially ordered. The form does not matter very much so long as only low-power lenses are used, and only low powers are suitable for use as supplementary lenses.

To find the supplementary lens required to alter focal length, first find the separation, or its nearest equivalent, which may be taken as about half the length of the doublet, if that is of the symmetrical type. Deduct this dimension from the focal length of the doublet, and multiply the result by the focal length required. Then divide the result by the amount by which the focal length is to be shortened or increased. For example, suppose we want to reduce an eight-inch lens to a six-inch one—that is, reduce the focal length by two inches. We may take half the length of the doublet as

being 1 inch, and deducting this from eight and multiplying by six we get forty-two. Dividing this by two, we find that a lens of twenty-one inches is required. This must be a positive lens. The nearest to this is a lens of plus two diopters power, or nineteen and two-thirds inches. To increase the focal length from eight to ten inches, or by two inches, we should proceed similarly. Multiply eight minus one by ten and divide by two, the result being thirty-five, which is nearest to thirty-one and one-half on our table, that is to a lens of minus one and twenty-five hundredths diopters. A negative lens is always required to increase focal length and a positive one to diminish it.

It will be noticed that in neither of these cases is a lens of the exact power required available. In the second case we have to use a thirty-one and one-half inch lens instead of one of thirty-five inches. To find out what effect this variation makes we can calculate the focal length of the combination of doublet and supplementary lens as follows:

Multiply the two focal lengths together and divide the result by the sum of the two focal lengths minus the separation; remembering that if the supplementary lens is a negative one its focal length is a negative quantity. Thus in the first of the examples given above we multiply eight by nineteen and two-thirds and divide by eight plus nineteen and two-thirds minus one, the result being five and nine-tenths instead of six inches, which was the result aimed at. In the second example we multiply eight by minus thirty-one and one-half and divide by eight minus thirty-one and one-half minus one, the result being ten and three-tenths instead of ten inches. Trial will show that a lens of minus 1 diopter would have given nine and three-quarters inches as the result, so that we have the choice of two, both giving nearly the length required. Speaking generally we may say that lenses of lower power than 1 diopter are not necessary, while those below two and one-half diopters are not advisable. Variations of less than one-half diopter are not required as they make little difference. Powers of one, one and one-half, two and two and one-half diopters are most useful, and their effect on lenses of three, four, five, six, seven and eight inches focal length can be very approximately gathered from the following table, in which we have allowed for separations varying from one-half to one inch, according to the focal length of the original lens.

Supplementary		Original Focal Lengths					
Lenses	3	4	5	6	7	8	
+2.50	D	2⅝	3¼	3⅞	4½	5	5½
+2.	D	—	3⅜	4⅛	4¾	5½	6
+1.50	D	—	3½	4⅜	5	5¾	6½
+1.	D	2¾	3⅔	4½	5¼	6	7
—1.	D	3¼	4⅜	5½	7	8¼	9¾
—1.50	D	—	4⅝	6	7½	9	11
—2.	D	—	4¾	6¼	8¼	10	12½
—2.50	D	3½	5⅛	6¾	9	11½	14½

Blanks are left in the three-inch lens column because the different effects of one and one-half and two diopter supplementary lenses are negligible. The former may be considered to have the same effect as one diopter and the latter the same as that of two and one-half diopters. The most useful variations are given with lenses of five-inch focal length and upwards.

As before said, two and one-half diopters is the strongest lens of the simple spectacle type that we can recommend. If greater power is required it is best to get a corrected supplementary lens specially suited to the original objective, and the makers of this original are best capable of advising in regard to the particular type of lens suitable. In the case of anastigmats it is always advisable to consult the makers, as some forms of such objectives can very readily be upset as regards their corrections.—*British Journal of Photography.*

The Relation Between Rapidity and View-Angle

Factors that concern the rapidity of lenses frequently form subjects for discussion, but one factor is often neglected because its importance is seldom realized. This factor is the view angle employed. The real facts being somewhat obscured by another condition, it often escapes notice that the smaller the angle to be covered the faster is the lens, or the shorter is the exposure really needful. The condition that causes this point to be missed is the latitude of the plate, for, as a rule, we regulate exposure so as to give a fairly uniform effect over a plate of certain size, and so fail to observe that a much shorter exposure would be sufficient if only we used a smaller plate or utilized a smaller view angle.

There do not seem to be many measured data in regard to this question, but fortunately, in the case of one particular lens, the well-known Dagor, we have very full details given by Dr. Zschokke in an article, a translation of which appeared in the *British Journal of Photography* for October twenty-fifth, 1912. From his diagrams and calculations we can see that, with a five-inch Dagor at full aperture, a quarter plate receives at the corners only one-third the light that reaches it in the center. Hence, it follows, that to give an appearance of equal illumination we must give approximately three times the exposure really necessary for the center alone. If we regulate exposure by the requirements in the center, the angles will show under-exposure, for latitude has very small value in the case of under-exposure, but, by considering the marginal requirements, we get the best results, for even a three times over-exposure in the center will not be likely to show visible effects.

If we consider three plates, one the size of a postage stamp, or ¾x1; one 2½x3½, and one 3¼x4¼, we get this result: if the shortest necessary exposure for the smallest plate is taken as unity, the 2½x3½ plate will require twice, and the quarter plate three times, as much at full aperture. Also, since a twenty-inch lens covers the same angle on a quarter plate as a five-inch lens does on a postage stamp, it follows that a twenty-inch Dagor will be nearly three times as rapid on a quarter plate as a five-inch lens of the same kind and same relative aperture; the extra thickness of the glasses will prevent the extra rapidity being fully three times. It has, of course, often been noted that long focus rectilinears used on small plates are much faster than short focus rapid rectilinears of the same aperture, and used on plates of the same size, and this fact was referred to quite recently in one of our American contemporaries. The effects described in the case of the Dagor are, of course, mainly due to the fact that when the angle is over a certain amount the lens mount begins to act as an extra stop, and to cut down the light. The effect begins to be of importance when what the Germans call the "Luke" and Southall calls the "Port", comes into action. By mere inspection we can easily see that this factor comes into play much sooner with a rapid rectilinear lens than it does with an anastigmat of the same aperture, for the former is nearly always of narrow or mid-angle construction, while the latter has a short mount, and is of wide-angle construction. This being so, the question of view angle is of greater importance with regard to exposure in the case of the rapid rectilinear than it is with the anastigmat; therefore, with two such lenses of the same focal length and aperture, and used on the same plate, the anastigmat must naturally be the quicker of the two, though the fact that it is so may not be noticed until the two are put into competition on equal terms. The hand camera worker who remembers the awful results he used to get with brief shutter exposures when his only lens was an f-8 rapid rectilinear, is often astonished at the results he can now get with an anastigmat at the same aperture, on plates of moderate speed, but the influence on rapidity of a wide-angle construction is probably the last idea that will occur to him by way of explanation. The cutting-off effect of the mount can be avoided by stopping down the lens sufficiently, while with an ideal lens it will not occur. In such case a 4x5 plate will only require twice the exposure necessary at the center with a five-inch lens, as mere obliquity of the light has a much less important effect than that of the cutting down of the "Luke".

Two other factors affecting speed are considered by Dr. Zschokke in the same article, one being the loss of light by reflection and absorption in passing through the lens. His working shows that this factor renders the Dagor at f-7.5 of just the same rapidity as the Syntor at f-6.8, so that the relative exposures required are as five to six when both are at the same aperture.

The other factor is the question of correction, it being obvious that the light is more concentrated the better the focus, and consequently that a given exposure produces proportionately greater effect. This does not apply to the center of the field, where lenses of very differing quality may produce equally good results, but it does apply to the margins of the image, and its effect is usually supplementary to that owing to view angle, seeing that good correction and wide angle, generally go together. By inspection we can generally tell whether the matter of view angle affects the result. If we take a five-inch rapid rectilinear and a five-inch f-4.5 anastigmat, and test each in a camera, it will

be found that, when we focus on infinity, an aperture of f-8 will be visible in its entirety almost to the extreme corners of the plate in the case of the seecond lens, while with the rapid rectilinear the mount will begin to cut down the aperture long before the margins of the plate are reached. Lenses made to work at intermediate apertures generally give intermediate effects at f-8, so, speaking generally, the larger the full aperture of the lens the quicker will it be at smaller apertures. This is only a rough way of putting it, but it serves to explain to some extent why the f-4.5 lens appears to be so extraordinarily fast, especially when found in the popular small vest-pocket camera, in which the advantage is added to by the smallness of the lens and the consequent thinness and smaller absorption of the glasses. At f-8 the full aperture is operative over nearly the whole plate, and the corners only require about fifty per cent more exposure than the center, whereas with a rapid rectilinear, the corners would probably require three or four times as much.

The angle over which the full aperture of a lens is visible is often called the angle of full illumination. It is easily observed, and, with suitable apparatus, quite easily measured. If we measure this angle at the same aperture in the case of different lenses, we get a rough clue to the relative rapidity of the lenses, it being certain that the larger angle implies greater rapidity on larger plates, though the proportionate increase is not indicated. For plates small enough to come within the angle of full illumination, the rapidities will be equal for equal apertures, so far as the factor of view angle alone is concerned. They may, however, differ on account of absorption and reflection losses, or varying degrees of correction, while in the case of near objects other factors may further affect the result. From all this it should be apparent that a mere knowledge of the f- number of a lens aperture does not by any means convey all the information with regard to rapidity that is really needed. So far as mere exposure is concerned, it may be enough, for the latitude of the plate is a very effective saving clause; but in the case of moving objects, necessitating finely-cut exposures, the f- number is inadequate, if we do not take other factors into consideration.—*British Journal of Photography*

Developing Bromide Prints For Toning

It is still a matter of discussion as to what particular course of procedure decides the final color of a toned bromide print. For my own part I have for a long time maintained that the chief, almost the only, factor is the exposure of the print in the first place. The development always depends on what the exposure has been, for if we used a developer such as metol, unless it was heavily restrained with bromide, the color when toned, was always rather cold, because the exposure was short; but if the negative was hard and a longer exposure was given, in order to get a soft print, followed by a short development, the resulting color was inclined to be yellow. And a developer containing metol and hydroquinone would require a longer exposure than metol alone, and the result would be a warmer color, and if the developer is modified in any way so as to necessitate an increase of exposure, a warmer color always follows, and, vice versa, any modifications necessitating a shorter exposure produce a colder color.

I found this out a long time ago before toning with sulphide of soda was used, in the days of cooking in hypo and alum. I had a number of prints, five hundred to be precise, of a water-color drawing in sepia, and it was necessary to have them as much like the original as possible. It was impossible to use any other process than bromide, as the whole thing had to be done in a little over a week. The size was 4x5, so I made four negatives of equal density and cemented them on to an 8x10 glass and printed them on 8x10 paper. But my negatives were rather denser than I had intended, and I found to my dismay that an exposure of thirty seconds was necessary to get a good print with normal metol-hydroquinone developer. This was serious, as I was almost single-handed at the time through illness of assistants; so an exposure of five seconds was given and a metol developer was used, and quite a good print obtained, but, alas; on cooking the two prints the normally developed one toned to a fine sepia, but the metol one refused to budge beyond a purple black; so some means of increasing the light had to be used so as to secure the same thirty seconds effect in five seconds. This experience explained why some prints toned readily and some refused to tone at all. In those days, to get a

good rich sepia the print had to be greenish in color, and to get this I saved developer which had been used for black prints until rather exhausted, and kept it for sepia prints, and this developer required one and a half to twice the exposure usually given.

I am quite convinced that, for all practical purposes, exposure is the factor which decides the final color, and that there is no other way of changing the color, except by the addition of liquid ammonia to the ferricyanide and bromide bleaching bath, which has the effect of making the color colder. But the resulting color is so unpleasant that I never use it. Of course some brands of paper give colder colors than others; batches of the same brand vary in color. The usual rule seems to be that a rapid paper tones a colder color than a slow one, and gaslight papers usually tone rather yellow, and in such cases ammonia may be used in the bleacher with advantage.

Amidol as a developer seems always to give a colder color than metol-hydroquinone, Monomet seems to give similar colors to metol. After all this long preamble I come to the important part of my discourse, and that is to suggest a means by which a considerable degree of uniformity may be attained by timing the duration of development. It is no more trouble than any other method, and requires no additional apparatus, as a clock is necessary for timing the exposure; for it is quite useless to time bromide printing by counting, as the difference of one second more or less may make a portrait print into a good or bad one, and probably no person ever counts seconds at the same speed twice. So the means are at hand for timing development. I do not claim the credit of the method; that is due to the last male assistant left to me. We find that for a portrait print, correctly exposed, a time of three minutes is necessary to give a good rich color, not too cold nor too yellow. Of course, others may find this too short or too long; those who use a very dilute developer will say it is too short, those who use a more concentrated solution will say it is too long. Each must find out the time which suits his method of working best, but I am sure that all will find it a valuable aid to uniformity of color and depth. It is not at all difficult to carry out: as soon as the trial print is slipped into the developer, a glance is taken at the clock and the time noted. If the print is dark enough in less than three minutes, the exposure has been too long, and vice versa. When the correct exposure has been found, the requisite number are exposed, and the number of the negative is written with a soft pencil on the back of the first piece of paper exposed, number one is written under the negative, number two on the next, and so on; when all are exposed, the last one is slipped under the developer first, a glance again given to the clock, and the rest of the exposed papers slipped in one at a time, so that number one exposure goes in last; and at the end of three minutes it is time for the highest numbered print to come out, and they follow in order, backwards, of course, the consecutive number is useful as it not only enables us to give each print the same time of development, but also checks the waste of overprints, as only just as many as are required are printed, making allowance for accidents, etc. This method, I am sure, will lead to much greater evenness of color and quality of printing.

There is no doubt that the method has a great deal to be said in its favor—the method of giving such an exposure that it is impossible to over-develop. I cannot go quite so far as that myself, as it will often give a colder color than I like, and also runs great risk of intensely yellow whites, when toned. Before the days of toning many bromide printers would persist in so over-exposing that as soon as the print attained sufficient depth it had to be snatched out of the developer and plunged into the fixing bath at once, or it would be too dark.

I tried many a time to convert one printer from that method, which always gave rusty-looking blacks and degraded whites, with great loss of gradations, at each end of the scale. I do not think I ever succeeded in convincing him that a good bromide print should remain some thirty seconds or so in the developer after attaining proper depth, without any further change. I expect the introduction of sulphide toning converted him, even if I failed, for such prints would tone a horrible yellow-brown. I think a little longer exposure would give a better print and a better color, because the halftones of a portrait have to be so very subtle and often delicate, and yet there should also be a little bit, at least, of strong dark.

I think that result is best secured by working out a time development suitable for the developer used. I am not sure yet what effect a slight rise in temperature may have on the color of the print when toned; of course, it would shorten the development, but I do not think it would affect the color, as the same depth of print would be secured in a shorter time. On the other hand, dilution of developer to obtain softness does alter the color, unless development is prolonged in the same proportion as the dilution of the developer. This is natural enough, as dilution would seem to produce the same result as prolonging exposure, a reduction of brilliance.

If yellowness of the whites is to be avoided, even with full exposures, I find it best to always use a second fixing bath. But yellow whites are often found if exposures are very short and development forced. I imagine this may be some form of dichroic fog, but if it is a large print that is involved it may sometimes be saved by clearing it with a weak solution of potassium cyanide, to which a few drops of tincture of iodine have been added.—HAROLD BAKER in *British Journal of Photography.*

Drying a Print Quickly

An interesting method of drying a bromide or gas-light print very quickly was that which Mr. Gear demonstrated the other night at the R. P. S. It is to place the print after such fixing and washing as is thought to be necessary, in methylated spirit, and as soon as the spirit has thoroughly permeated it, the print is held up by some metallic holder and set alight. The moment the spirit flame is extinguished the print will be found to be quite dry and altogether uninjured. Surprising as it may seem, he said the process is perfectly reliable, and he had never destroyed or injured one in any way by carrying it out. In these days, when for military purposes it is of great importance to turn out large numbers of finished prints and enlargements at high speed, the method should prove a very useful one.—*Photography.*

Supplementary Lighting

There have been many days recently when the light has been extremely poor in quality and it has been almost impossible to secure negatives with any trace of sparkle. On such days a half-watt lamp of, say one thousand candle-power, is of great importance in brightening up the high lights. The model of stand which will be found most convenient is the portable one with a large bowl-shaped reflector and a small diffuser. This can easily be moved about so as to get any desired effect. Such a lamp can, of course, be used at night, but it is hardly powerful enough when diffusers are used except for heads and half-lengths. At the risk of being tedious we must reiterate the necessity for these lamps to be run at their full voltage. A slight drop in the voltage may cause little difference in the visual effect, but it seriously reduces the actinic value of the light. Those photographers who cannot command electric current will find that a few grains of a good flash powder fired from a suitable point at the end of the daylight exposure will have a very similar effect in securing brilliancy. So small a quantity is required that the smoke is practically negligible. —*British Journal of Photography.*

The Lantern Screen

In the course of a discussion on the lighting of cinematograph theatres, held at the Illuminating Engineering Society the other day, it was stated quite confidently that neither in the case of the ordinary optical lantern display nor the cinematograph was the darkened auditorium a necessity. Mr. Bishop Harman, the well-known ophthalmic surgeon, said that he had always found the ordinary methods of lantern projection fatiguing to the eye, but that they would not be fatiguing if the room were lighted almost normally, and to secure sufficient vividness on the screen, this was surrounded by a thick black frame projecting forwards at right angles to the screen surface on all sides. Dr. James Kerr said also that extreme contrast between the brightness of the screen and the general surroundings was injurious to the eyes. As to the material for the screen, Dr. Kerr believed that a matt-white surface gave the best effects. Screens composed of aluminium powder had been introduced on account of the greater brilliancy obtainable, but it was said that such screens gave rise to inequality of brightness according to the direction from which they were viewed and to inconvenient moving shadows. —*Amateur Photography.*

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Getting a Negative Retouched

The amateur worker occasionally essays a portrait, something about the size of a "cabinet" head. The print is not satisfactory so he decides to send it to a retoucher. And the retoucher never does a good job for him while nearly always charging a most terrifying price. If the amateur understood the matter better he would have a deal more charity for the retoucher. The average portrait negative that the amateur makes is produced under conditions that are almost impossible. He never thinks of using a side screen or reflector, despite the fact that his ordinary window light is several times more intense and concentrated than that of the professional working under a skylight. He undertimes the plate nearly every time and then over-develops it through expecting it to look like his average landscape productions. The result is that the retoucher can do nothing at all with the light portions and, as the shadows are devoid of any detail that suggests the form of the face, he can only surmise what the expression should be like. The lighting of the amateur's negative is generally from so low a point that the shadows do not fall naturally and of course this is an added difficulty, particularly to one used to working on negatives made under a light falling at an angle of about forty-five degrees. If you want to make a portrait negative from which the retoucher can help you to produce a good print, take a little pains to give him a chance. Use a reflector to lighten up the shadow side of the face and curtain off, with an opaque screen of some kind, the lower part of the window so that the light falls at an angle of about forty-five degrees. Be sure to give a good full exposure, and then do not develop too far. No part of the face should be developed to the strength of a sky in a landscape negative, only a white collar should be allowed to become fairly dense. Do these things and you will have a negative that the retoucher can improve. Retouching is a great power in the hands of a skillful worker, but it is not capable of producing wonders from a negative such as I have tried to caution you against making.

Making Better Negatives

The average amateur is inclined to underexpose most of his plates or films. If you do not believe it just ask the nearest amateur finisher and he will enlighten you. Of course, you are not one of the guilty ones, even if you do occasionally cut your exposure time a little short; but just the same, if you are doing your own developing, try the following experiment, just as a matter of education. Take the camera out some day and make a series of exposures just as if you were following your regular course of a day with your camera, except that you give every exposure just double the time you ordinarily would. When you get back, mix up your developer, or one tray full of it, with the alkali solution reduced about one-third. Start all your exposures in this solution, and, should one fail to come up in a reasonable time, transfer it to a tray of the usual strength developer. If you have any idea at all about exposures you will not lose any of these through having given double time; and, every one that you have to finish in the regular developer will show you that, had you given the time you figured on before doubling the time, you would have had an under-exposure. And also, unless I miss my guess badly, your negatives for the day will have a little more than the usual quality.

Copper Bromide Intensifier

An Indiana reader has had trouble in using the copper bromide and silver intensifier according to the formula given in one of the annuals. This formula is all right except that the solutions are both rather strong and a few precautions are not given, perhaps for the sake of brevity. The bleaching solution is made by dissolving one-half ounce of copper sulphate in eight ounces of hot water and one-half ounce of potassium bro-

mide in another eight ounces of hot water, mixing the two solutions and allowing it to cool. Immerse the negative until bleached through to the back and then give five minutes soaking in each of three or four baths made by adding one ounce of acetic acid to fifty ounces of water. Pour the last of these baths into a glass measure and add a little ammonia; when, if the soaking has been sufficient, the solution will turn only slightly blue. Then rinse the plate in distilled water and apply the silver solution, made up by dissolving one-fourth ounce of silver nitrate in eight ounces of distilled water. Wash a few minutes in distilled water and then place in a weak solution of common salt to throw down any excess of the nitrate, which last will cause brown stains or fog on the negative. If too dense after applying the silver, rinse and immerse in a weak hypo solution. If great strength is desired, first immerse in a ten per cent solution of sodium sulphite and then develop in full daylight with an ordinary developer, preferably amidol. This last procedure is very suitable to line negatives. If too dense after such development, any ordinary reducer will correct as in the case of an ordinary negative.

Arrangement of a Group

A subscriber in Illinois is making group pictures and writes to ask how the figures should be arranged in reference to their clothing, whether the latter be dark or light. The best plan is to get, as far as possible, those in light clothing near the center of the group. A too strict observance of the rule is not good, but it is better to have the group resemble a light patch surrounded by a darker border. If light and dark clothed figures are alternated there is produced a checker-board effect that is not pleasing, and if the center of the group is the darkest part a sort of patch is the result.

Photographing Medals and the Like

A great deal depends upon the condition of the medal. If it be at all spotted or corroded as to surface the best plan is to clean it well and then take some means of dulling any polished portions that may result. A light gray applied with an airbrush is effective, while holding it in the smoke from burning magnesium ribbon is another good plan. If the surface be fairly uniform and no polished parts in evidence, no preparation is necessary. Fasten the medal up so that the light falls from one side and from slightly above, and then, during the exposure, pass a screen to and fro just in front of the window, varying the exercise by lowering and raising the shade. This, by causing the light to fall at different angles, will make the edges of the shadows quite soft while still leaving them strong enough to throw the raised portions of the engraving into good relief.

Keeping Cut Flowers

Cut flowers can be kept in good condition for two weeks or more, says the *Pharmaceutical Journal*, by a method described as follows: The flowers are first well sprinkled with fresh water and then placed in a vase filled with the following solution: Hard white soap, one ounce; sodium chloride, fifty grains; water, thirty-four ounces. The soap is shaved and dissolved in water, the salt is then added, causing a slight gelatinizing of the solution. Finally a very little boric acid is dissolved in the water. The flowers are taken out every morning, the foliage washed, and then put back in the vase; the solution being renewed every three days.

Silver from the Hypo Bath

An Iowa reader wants to know how best to recover the silver from his hypo fixing baths. The plan usually followed is to mix up a saturated solution of potassium sulphide and add one-half ounce of this to every gallon of the bath to be treated. After the mixed solution has thoroughly settled the clear portion is poured off and the black mud at the bottom is placed aside until enough is secured to make it worth while sending it to the refiner.

Testing the Washing Box

An Ohio correspondent is not quite sure as to the efficiency of his plate washing arrangement in the matter of a thorough circulation of the water. He can very easily find out just how long it takes for the water to make a complete change by filling the box or tank and then adding a little ordinary bluing thereto, just enough to make the contents plainly of a blue color. Allowing the water to flow in, it is obvious that the time required for the blue color to disappear is the time required for a complete change of the contents. Insert the regular number of plates so that the action will be the same as in actual use.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

Dissolving and Vignetting Devices

Shaped like the ordinary iris diaphragm, but larger, the blades of the Goerz round closing dissolving and vignetting device, are so constructed that they close entirely out. The usual mounting is upon a sliding base and extension tube. The latter permits movement toward or away from the lens, thus maintaining control over the diffusion of the circle effects, either when in circling

in and out or when vignetting close-ups. The cameraman will find the sliding base desirable when he is called upon to feature the expression of an actor not in the center of the picture. If the cameraman cannot change the position of the camera, he can, with the sliding base, make circle fade-outs anywhere in the picture. When using the sliding base, the extension tube is shortened so that the device, when opened, clears the picture. To make several vignetted close-ups, as for introducing the actors on the title, using a small aperture, the first actor is circled in for a certain length of film, then circled out, the film run back, the device set for another position, the same method repeated, and so on, as many as eight having been made on the same piece of film. For such work the device is fitted with a stop pin attachment that permits the aperture to be set for any diameter required. The free aperture of the dissolving and vignetting device is two and five-eighths, and the movement of the sliding base is limited to five and three-fourths inches when centered. It can be worked either by gear action or set by hand. A special one, having a full aperture of three and one-half inches, is made to order. The mask box, which is detachable, is an important supplement to the round closing dissolving device, can be adjusted to perfect alignment with the picture aperture. A slot cut through both sides enables the cameraman to insert masks cut out of metal, cardboard or colored celluloid for the purpose of making double exposures of a shape to fit the scene. Usually, it will be found more advantageous to use the masks in this way as they can be cut larger and are hence easier to trim and adjust than the before-the-film kind.

A Double-Exposure Attachment

This is designed to produce three different effects. By means of the control lever the two parallel blades open or close in opposite directions, having, if placed with edges of the blades vertical, the effect of two sliding doors. With edges horizontal and lower detached from the control lever, the effect is similar to that of raising and lowering a curtain in front of the scene. Using the blades independently they may be set by hand to divide the stage into two or more parts for double or multiple exposures. This latter effect is used to advantage when an actor plays a dual role in the same scene. The division line of the first exposure blends with that of the second, leaving no division line evident in the finished picture. It is quickly attached to the front of the mask-box; and, being further away from the lens, allows a larger movement and a more exact adjustments than do some devices.

The Square Closing Device

This dissolver is designed to be used in a similar manner to the one just described, all four sides moving toward the center. It can be used for opening or closing a scene

or for a performer walking toward or away from the camera; for the first by opening slowly, and for the second by closing slowly. Many scenes can be improved by substituting this for the circular dissolve, which last is not adapted to all kinds of scenes. These

dissolve and vignetting devices are adaptable to almost any camera, but for such cameras as necessitate alterations, changes are made only in the tube and in the means by which they are attached. Designed and manufactured by the C. P. Goerz American Optical Company they are already quite extensively used by motion picture producers. This firm offers its expert advice to all cameramen, and will be glad to work out any new devices that may be presented.

The Schustek Camera

This camera has a number of features that are worth while. Accurate focusing is achieved without loss of time or film, and without either the position of the camera or the film being disturbed. The focusing device consists of a reflecting prism that can be instantly brought between the lens and the film by means of a small knob on the outside of the camera. The image is observed through the magnifier, attached when the camera is set up, focusing being done by means of a knob at rear of camera. A focusing scale for one or more lenses may be marked on the edges of the slot in which the focusing knob moves, and when it is desired to change focus in a scene, one can, by means of adjustable rods that lock in place, limit the focusing knob to the maximum and minimum distances required. A mechanical shutter dissolve permits dissolves being made to or from one hundred and eighty, one hundred and twenty, or sixty degrees shutter opening. A sliding peep hole allows adjustment of brilliant finder to different distances of subject to camera. Although this particular arrangement is simple and ingenious, I have, with other cameras, found the brilliant finder unsatisfactory where the panoram or tilting tripod head was used. This for the reason that the body must be moved in order that the eye remain centered on the brilliant finder, and this introduces a difficulty not connected with the usual type of finder. While not readily adjustable, the frame line position can be shifted, if necessary, without mechanical alterations. Means are provided for changing lenses with comparative ease, and provision is made for readily attaching iris, masks, etc. The film movement is of the same type as that of the Pathe camera and the film take-up is automatic in either direction after the slack in the film is taken up by hand when reversing. Although the magazines are enclosed, the complete camera is somewhat more compact than the older types of box-shaped ones, and the weight as low as that of any camera having the same range of usefulness. The moving parts are built on a rigid metal frame, assuring permanent alignment.

OUR BOOK SHELVES

"Practical Palmistry for the Amateur"

The new edition of this popular exposition of the principles upon which palmistry is based, the work of Eveline Mitchell Farwell, has just been issued. This work is intended for the edification of those who have no previous knowledge of the subject, rather than the professional palmist, and it fulfills this mission most admirably for the reason that it avoids all technicalities, treating the subject in a most entertaining and instructive style. All the terms used are fully explained and the reader is told in simple, straightforward manner how to "tell

fortunes" by the shape of the hand and the lines and markings thereon. The reader will find that palmistry can furnish no little of interest and diversion for the home or social gatherings. Published by The Page Company, 53 Beacon Street, Boston, Massachusetts. Price one dollar net, carriage paid one dollar and ten cents.

"The Philosophy of Business"

This new book, its subtitle explains, is "A Little Book for Big Men"; but, rightly interpreted, we should think the phrase: A Big Book for Little Men, would also express its mission. While it is not large in the matter of paper and printing, and while it would no doubt be of great interest to even the largest business man, it is a book of large import to the man who finds himself somewhat smaller than he would like in the business world. As its title indicates, it deals with the philosophy of business and not with the science thereof, the former underlying the latter. The author may, in the ethical principles evolved, be a trifle advanced, his reasoning is sound and convincing, making the book one that has a strong appeal to any thinking man. It is helpful and inspiring, one that will be read and reread with added interest and benefit to be derived from each return to its pages. Published by William H. Pool Printing & Binding Company, 626 South Clark Street, Chicago. Price one dollar and fifty cents postpaid.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

California Camera Club

An exhibition of photographs from the London Salon, the work of the best known pictorialists of England, now adorns the walls of the Club. The response to the six hundred or more invitations issued by the Club was most gratifying to the committee in charge. Not only has the exhibition been unusually well attended but the pictures have called forth much favorable comment from all who have viewed them.

On Saturday, June ninth, Club members and their friends to the number of three hundred, left the city on their annual nine days pilgrimage to Yosemite Valley. The party was personally conducted by special Club Committee members; and, a letter just received reports an exceptionally enjoyable outing for all taking part therein. The Club has, by reason of its wonderful growth, found it necessary to increase its facilities and enlarge its quarters. Building operations, already begun, are expected to be completed on or about the first of August, when the Club will move into its new quarters and celebrate the event by a good, old fashioned housewarming. In the meanwhile, Club activities will be suspended in order to facilitate the construction work.

Bangor Society of Arts

The Fifth Annual Salon of Photography, Paintings, Arts and Crafts, was held at the Fine Arts Gallery of the Public Library, Bangor, Maine, May seventeenth to nineteenth last. One hundred and fourteen fine examples of pictorial photography were exhibited; Fred Archer of Los Angeles having ten; W. H. Rabe of Oakland, twelve; Walter H. Stephens of San Francisco, six, making twenty-eight of the sixty pictures not by Maine workers, showing that the Californians are at least doing their full share in the matter of exhibitions at a distance. The salon was well attended and the committee having it in charge is to be complimented upon the success achieved.

We understand that Alfred Summers, who has been working in an engraving plant in Philadelphia, has resigned his position and will return to his home state, Indiana, where he will enlist for military service.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

ALBUM DIRECTOR.

Alabama—Richard Hines, Jr., Barton Academy Bldg., Mobile.

Alaska—P. S. Hunt, Anchorage.

California—W. E. Thomson, 3211 School St., Fruitvale.

Colorado—O. E. Aultman, Plested Bldg., Trinidad.

Connecticut—George E. Moulthrope, Bristol.

Florida—Capt. E. S. Coutant, Lock Box 73, Stuart.

Georgia—L. O. Surles, P. O. Box 434, Cuthbert.

Idaho—Eugene Clifford, 902 9th Avenue, Lewiston.

Illinois—George A. Price, 320 N. Locust St., Centralia.

Indiana—H. E. Bishop, 1706 College Ave., Indianapolis.

Iowa—C. W. Parker, Mapleton.

Kansas—H. E. High, Box 232, Ellsworth.

Maryland—E. G. Hooper, 218 East 20th St., Baltimore.

Massachusetts—John Mardon, 161 Sumner St., Boston.

Michigan—W. E. Ziegenfuss, M. D., 327 West Hancock Ave., Detroit.

Minnesota—Leonard A. Williams, St. Cloud.

Mississippi—George W. Askew, Jr., 211 34th Ave., Meridian.

Missouri—Wharton Schooler, R. F. D. No. 2, Eolia.

Nebraska—Miss Lou P. Tillotson, 822 South 38th St., Omaha.

New Hampshire—Mrs. A. Leonora Kellogg, Box 224, Londonderry.

New Jersey—Burton H. Allbee, 103 Union St., Hackensack.

New York—Charles F. Rice, P. O. Box 517, Mamaroneck.

North Dakota—Jas. A. Van Kleeck, 619 Second Ave., North, Fargo.

Ohio—J. H. Winchell, R. F. D. No. 2, Painesville.

Pennsylvania—L. A. Sneary, 2822 Espy Ave., Pittsburg, Pa.

South Dakota—C. B. Bolles, L. B. 351, Aberdeen.

Texas—J. B. Oheim, P. O. Drawer M, Henrietta.

Utah—John C. Swenson, A. B., Provo.

West Virginia—William E. Monroe, Box 298, Point Pleasant.

NEW MEMBERS.

4366—Otho Webb, Wahroonga, Darr Creek, Jandowae, Queensland, Australia.
Class 2.

4367—Frank P. Bloss, U. S. Navy, care Postmaster, San Francisco, Cal.
Class 2.

4368—J. Wm. Emerson, 305 Marin St., Vallejo, Cal.
4x5, 5x7 and enlargements up to 30x40, various papers, of general collection, particularly show girls, bathing girls, and a few nudes; for bathing girls and nudes, draped and undraped, prefer nudes. Class 1.

4369—George L. Kongslie, Box 117, Upham, No. Dak.
5x7, developing paper, of landscapes; for landscapes and marine views. Class 1.

4370—John J. Ralph, 40 Flushing Ave., Jamaica, N. Y. Class 2.

4371—Homer A. Sanford, Box 854, Skagway, Alaska.
Post cards, developing paper, of mountains and woods; for any and all kinds. Post cards only. Class 1.

RENEWALS.

1771—Burton H. Allbee, 724 East 22nd St., Patterson, N. J.
Lantern slides, unmounted particularly of historical buildings and sites; for the same. Either standard size or small slides suitable for Viopticon. Class 1.

2990—Jas. L. Vaughan, R. F. D. No. 1, Belfast, N. Y.
Stereoscopic view, developing paper, of miscellaneous subjects; for the same with particulars noted so that they can be placed on the back of each mount. Developing paper only. Class 1.

3669—L. S. Todd, 198 Parkway Ave., Niles, Mich.
Post cards and 4x6 D. W. prints of national views, rivers, woods, birds, animals, flowers, high speed pictures, etc.; for good pictures on post cards or 4x6 double weight paper of anything interesting in sets of 6 or 8. Only good work sent out or accepted—no portraits or groups. Class 1.

CHANGES OF ADDRESS.

2536—P. S. Hunt, Anchorage, Alaska.
(Was Valdez, Alaska.)

2999—Archie W. French, Balboa Heights, Canal Zone.
(Was Ancon, Canal Zone.)

3385—Chas. I. Reid, 4122 Windsor Ave., Cleveland, Ohio.
(Was 1900 Euclid Ave.)

4245—Willia N. Maguire, 1301 Tenn. St., Lawrence, Kans.
(Was Jetmore, Kans.)

4265—Chas. Beavers, Highland, Kans.
(Was Burlington, Kans.)

4334—Matthew Green, Lake Carrier, Miss.
(Was Greenville, Miss.)

4348—Konstantin Brener, P. O. Box 610, Hendersonville, No. Car.
(Was Gaffney, So. Car.)

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Roscoe Perkins of Honolulu is in San Francisco on a visit to his father.

W. S. Valentine of Redding is spending the summer in Oakland.

H. S. Carter of Salem is again in San Francisco after spending six months in Pomona.

Franklin Harris is now in Merced with Thullen & Robinson. This firm is doing some fine Yosemite Valley work, using the Mandeville Colors with the greatest success.

Miss Schwartz, assistant to H. E. Burns of the Bullochstore in Los Angeles is quite a motorist. She recently climbed the Torrey Pine Cliff with her car in order to take a photograph of the famous Pines.

E. R. Pershing, a nephew of General Pershing, was in San Francisco doing circuit work for the U. S. A. boys.

"Webb's Service" in photographic finishing is the best in the Santa Clara Valley. Mr. Webb has a very fine, two story plant, right up-to-date,—which the writer recently gave a thorough inspection.

In addition to a large local attendance, there were quite a few photographers from both the Coast and Valley at the E. K. Co.'s School in San Francisco.

"Pa-Co" Film Hangers

Necessity, the "Mother of Invention", is answerable for the "Pa-Co" film hanger, a much needed and most timely utility in the developing of film packs and portrait films. The president of one of the largest amateur finishing businesses west of Chicago, The Photographic Appliances Corporation, being unable to find a satisfactory device for handling these films in quantities, resolved to overcome the difficulty. Ease of handling, compactness and avoidance of chemical action on metal, were the principal conditions to be met, and Mr. Dye set about experiments that were interesting and varied. He tried threading on strings, hanging on wire, and the like. He had also to combine multiple of units so that a number of packs or portrait films could be developed, close together, in a tank.

One by one the various difficulties were overcome, the result being the present simple device that permits of linking the hangers, or units, together, making it possible to develop the films in either a shallow or deep tank, with ease and rapidity, in fact, as easily as the roll film.

This unit or master hanger is made to rest on top of tank, and additional units, as one will note in the illustration in their advertisement, are easily added. The films remain on this hanger until ready for the printers, when simply pulling out the needle releases them.

American Trade Papers Abroad

Richard Hill, Davenport, Auckland, New Zealand, does a big business in subscriptions, handling English, American, and Australasian journals. His list, a copy of which recently reached us, together with a letter describing the business, is made up principally of United States trade papers, indicating the value of these publications from the standpoint of export business. "Although a Britisher", Mr. Hill writes, "I have no favorites in journals—those that will give the best returns to subscribers are such also to me". Last year he handled one thousand nine hundred and sixty-three new subscriptions, and a gratifying per cent of these were for CAMERA CRAFT.

Probus-Mandeville Oil Colors

Wolff & Dolan, the manufacturers of the well known Probus products, have taken over the Mandeville Colors and will put them out hereafter under the name of Probus-Mandeville Photo Oil Colors. These colors, besides being permanent, have a transparency and adaptability that makes their application to any kind of print on paper, the simplest matter. No preparatory medium is

required, they are easily reduced and blended, so that the beginner finds no difficulty in producing the most pleasing effects. Even in the hands of the inexperienced they produce the beautiful pastel effects that made Mr. Mandeville's Exposition views so much admired and sought after, despite the many other colored views on the market. These colors are put up in sets of ten colors, with instructions, price one dollar; twelve colors, large pans, price two dollars and fifty cents; and the last with sizing medium and patent pallette added, price three dollars and fifty cents. These are known as numbers 0, 1 and 2, respectively, and should be so ordered. If one cannot obtain them of his dealer they will be sent, postpaid upon receipt of dealer's name and price quoted above, by Wolff & Dolan, 220 Post Street, San Francisco, California.

The New Graflex Catalogue

As always, the new Graflex catalogue is extremely interesting with its reproduction of high speed pictures made with Graflex and Graphic cameras, to say nothing of the very full and convincing descriptive matter that is given in connection with very fine illustrations of the various models of these excellent cameras. Much that is interesting concerning the working of the focal plane shutter with which the Graflex and Graphic cameras are equipped, is given, together with illustrations that are particularly enlightening in the matter of the illumination afforded by this type of shutter. The Folmer & Schwing finger print camera is pictured and described and the particulars concerning the Graflex and Graphic enlarging cameras should also be of decided interest to our readers. Be sure and get a copy of this new catalogue from your dealer; or, if not available, write directly to the Folmer & Schwing Department, Eastman Kodak Company, Rochester, New York, which will gladly send copies upon request.

A Letter From Mr. Harvey

"Dear Mr. Clute:

"I am sending you one of the new No. 2 Harvey Exposure Meters, and you may be interested in knowing that since I called upon you last fall, I have continued making the exposure tests that I then told you concerning. As you know, the speeds of plates, as given on the Harvey plate speed list, are quite different from those given by others. The reason for this is found in my method of testing plate speeds.

"Except in the case of the Graflex plates, which were developed in Seeds 30 tank developer, with the approval of the manufacturer, I determined the plate speed by developing each kind of plate or film in the particular developer advocated by the manufacturer, and I consider this a much better method of determining plate speeds than that of using the Hurter & Driffield Standard plate speed developer, which, I have been told, is the method employed by most plate speed testers. Personally, I think it is of no value to a photographer to know the speed of a plate in a Hurter & Driffield developer, one that he never uses in actual work. At least, I have never found an amateur or professional using that particular developer. A photographer is more interested in knowing the speed of a plate when properly developed in the developer recommended in the manufacturer's formula sheet. While plates and films may be developed in developers varying widely in their composition, it is difficult to determine just what brands respond most completely to any particular developing formula.

"I have taken a certain brand of very slow plate and, by using a developer recommended for a certain high speed plate, made the plate almost as fast as the high speed one. But, I found that such treatment of the plate lost for me much of the color value and gradation I should have secured. In taking a high speed plate and developing it in the developer advocated for a slow plate, I found it hardly any faster than the latter. If the emulsions on all plates and films were made up of the same material, it would be perfectly proper to develop them all in the same developer; but such not being by any means the case, it would seem obvious that different developers should be used to accommodate the different compositions of the emulsions.

"I believe all workers, amateur and professional, would be wise to follow the instructions for developing given by the plate manufacturers. The manufacturers know just what is in his plate and should know the best developer for it. He has spent his lifetime in the work, he has experts working on the proposition, and it is only natural that he should recommend the best possible developer for the particular plate he is offering.

"For those who develop in tanks, I would call particular attention to the importance of having developer absolutely correct as to temperature. A change of only two or three degrees will seriously affect the length of time required for development.

"Yours very truly,
(Signed) GEORGE L. HARVEY.
"Chicago, Ill., May 14th."

Rodenstock Lenses In Demand

The W. J. Lafbury Company writes us that despite the war that has cut the firm off from its source of supply for over two years, they are able to fill orders for practically all sizes of their lenses. This fortunate situation is due to the fact that just prior to the war they placed large orders for lenses mounted up on a new basis that incorporated the engraving of stop numbers used in this country. This gave them exceptionally complete and heavy stocks in all sizes, both in plain barrels and Compound shutters, these being received just prior to the war and shortly thereafter, as the factory doubled up the orders in some instances. With the stock in the former style of mounts augmented by this large and complete aggregation of shipments added, the firm has a supply which has enabled them to continue filling orders with a stock that will hold out for some time to come. Those interested in high quality anastigmat lenses at a reasonable price should, however, place their orders at once so that there may be no disappointment if certain styles and sizes be sold out at a later date. Full particulars can be secured by addressing W. J. Lafbury Company, 305 North Fifth Avenue, Chicago, Illinois.

The "Pa-Co" Post Card Outfit

The Paco Post Card Printer and Developing Outfit consists of a printer, a compact machine operating on the principle of a job printing press, and a series of racks holding one hundred cards or prints, these last made to fit the developing, washing and fixing tanks, five of which tanks are furnished with each outfit.

The person doing the printing sits comfortably in front of the machine, from which position the film or plate negative is placed in position with the loss of but a minute's time. After accurate exposure has been established by making a test print, all prints from this negative are absolutely uniform as to time of exposure and consequently developed uniformly. The operator feeds the cards naturally and easily; and, after printing, places them in the specially constructed racks, ten of which are furnished with each outfit.

The entire machine, with the exception of the table, is of metal, finished in black enamel. It is simple in construction, mechanically perfect and can be operated by a person of moderate ability. They are giving the best of satisfaction in every-day use by their patentee and maker, the Photographic Appliances Corporation of Minneapolis, who are doing a very large local view and advertising post card business.

Illinois College of Photography

With the coming of spring the students are beginning to prepare for the sports of the summer. Both baseball and tennis teams are being organized and in a short time the "would-be champions" will be given a tryout.

Quite an interest is being manifested in the print contests held by the College Camera Club. At the last one prizes were given as follows: Portraiture, R. S. Tanaka; Coloring, Russell Penglase; Commercial, R. C. Bagby, and Special Sketch, F. E. Wesner.

On Saturday, May twenty-sixth, the city of Mattoon, twenty-eight miles north of Effingham, was struck by a tornado, greatly damaged; over seventy lives were lost and several hundred were made homeless. The College was asked to take up a collection for the sufferers, and the students responded well.

Festivities and Flag Presentation

Employees and their families, to the number of one hundred and seventy-five, gathered, Friday evening, June first, at the Sprague-Hathaway Building and dedicated, with festivities and a flag presentation, a large room or hall on the top floor intended for business purposes. The firm bears an enviable reputation for its high grade enlarged photographic work and this spontaneous exhibition of good will by its employees was only another expression of appreciation of the fair dealing that characterizes the men at its head. President Wallis welcomed the guests and made a neat little speech of thanks. Music and refreshments added to the enjoyment of those present.

CAMERA WANTS

Advertisements of the above nature shown below will be inserted under this heading at the rate of fifty cents each insertion, for twenty-five words or less; each additional word, two cents extra, cash with order. Those of positions wanted inserted free. No business advertisements accepted.

FOR SALE Bargain, 5x7 Compact Graflex fitted 15a, IC Tessar lens and roll holder, latest model. Like new, for $125.00. W. Schiller & Co., No. 6 So. Broadway, St. Louis, Mo

IPSCO REFLEX Camera wanted, 4x5 equipped with 15a Genuine Carl Zeiss IC Tessar f-4.5 lens. Ernest Grams, Michigan City, Ind.

POSITION WANTED By home portrait operator. Address Portrait, care "Camera Craft", San Francisco, Cal.

FOR SALE Graflex, brand new, 3¼x4¼ with 6.3 Kodak anastigmat lens and adapter for $50.00, cost $73.50. Rivers, Box 1032, Los Angeles, Cal.

POSITION WANTED In studio or stock house, 16 years experience as retoucher. Excellent references furnished. Can pack or frame large portraits. Address The M. L. Hall Retouching Studio, 610 Tracy St., Utica, N. Y.

POSITION WANTED Is there not some one that wishes the services of a young man with quite a little advanced amateur experience who wishes to gain experience in a studio? Am willing to start at the bottom and work hard. Will send samples of my work and information to those interested. C. R. Dunbar, Casselton, No. Dak.

WANTED TO BUY Large size set condensers. Must be in good condition. B. S. Ansley, 312 So. Main St., Los Angeles, Cal.

FOR EXCHANGE A 11x14 soft focus lens (French), 15 in. focus for a 2¼x3¼ or 2½x4¼ pocket camera or kodak. Also have 8x10 view box and 3 double holders. Will trade both above, what have you? J. C. Shinkle, Woodland, Cal.

SALE OR EXCHANGE One No. 4 Eastman Panoram Kodak, 10 films and 30 mounts for panorams, $16.00 lot. One each of the following; No. 1A Ansco camera, f-7.7 anastigmat lens, Ilex Universal shutter, list $22.50 for $15.00; No. 2A Seneca folding camera, $6.00; 1 oz. Metol $2.00; one Brownie and one 5 in. Kodak film tank complete, $1.50 and $3.50; 7 in. duplicating outfit, $2.00; No. 2 Brownie developing box, 50 cents. All new except tanks which are slightly used and in new condition. Want camera for portrait work, anastigmat lens, or will sell separately. W. A. Gillespie, Box 156, Stamps, Ark.

FOR SALE Goerz Dagor lens No. 3, 8¼ in. focus, f-6.8, mounted in Optimo shutter. In first class condition. $45.00 cash. G. G. Menke, Angiola, Cal.

FOR SALE One No. 5 Cirkut camera, list price $118.00, only used a few times, in A1 condition. Also a Cirkut printing frame 6½ in. x 48 in., list price $6.00. Will take $90.00 cash or trade for an Eastman enlarging outfit. Act promptly. Vogel studio, Sedro-Woolley, Wash.

$300.00 Will buy oldest established studio in Berkeley, Cal. Population 60,000; seven rooms finely equipped, large north skylight, low rent, long lease, modern, best location. Address E. P., care "Camera Craft", San Francisco, Cal.

GRAFLEX Camera 4x5, long draw, reversible back, Heliar f-4.5 lens, plate-film pack, roll film and magazine backs; will sell for $70.00. C. V. Estey, 767 Market St., San Francisco, Cal.

FOR SALE New No. 4 Panoram Kodak with carrying case and No. 2 Brownie old style folding, very reasonable, or will exchange for Boston terrier, either pup or good brood bitch. Write Eddie Nelson, Box 247, Mt. Vernon, Wash.

FOR SALE One Seneca No. 9, brand new, case, holders, film pack adapter and metal tripod. Geo. P. Russell, 25 West 65th St., New York.

POSITION WANTED By an experienced all round photographer. A. R. Marten, 1024 5th St., Santa Monica, Cal.

FOR SALE 6½x8½ camera with anastigmat lens and complete outfit; a $250.00 outfit for $100.00. Here is a bargain, selling on account of sickness. Address Wm. Jesse, 1084 Portor St., Detroit, Mich.

FOR SALE No. 6 Cirkut outfit, rapid rectilinear lens, 6 foot printing frame attached to good electric printer. Price reasonable. J. H. Kammerdiener, 1301 W. 15th St., Chicago, Ill.

FOR SALE 3A Dallmeyer f-4, T. P. shutter, $50.00; 8x10 Smith doublet, f-4.5 in studio shutter, $30.00; 5x7 Wollensak series III wide angle f-9.5, Regno shutter, $15.00; 8x10 Wollensak Versar f-6 in studio shutter, $17.00. Excellent condition, each one a bargain. Frank Burlot, 297 Audobon Boulevard, New Orleans, La.

THE MAN YOU Work for began in a small town. You want a place of your own, where you can be your own boss and while "growing your wings" of business experience, make more money than you are now drawing. In a small town you deal with the same people as in the cities, while expenses and competition are much less. I have a well equipped studio and photo supply store, occupying the ground floor of a well located brick building, rent $15.00 per month. Studio is in a live county seat town, no competition in the county. Will sell for $1200 or invoice; cash. Investigate. Address A. A. F., care "Camera Craft", San Francisco, Cal.

WANTED 5x7 Zeiss Tessar f-4.5. Must be reasonable. Address S. A. O., care "Camera Craft", San Francisco, Cal.

FOR SALE 8x10 Carlton camera, plateholders, tripod, also Thornton Pickard curtain shutter, cost $50.00, will sell for $18.50. Address P. P. S., care "Camera Craft", San Francisco, Cal.

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A Photographic Monthly

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A SIMPLE LANDSCAPE
By THOMAS P. MASON

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV AUGUST, 1917 No. 8

Commercial Slide Making

By Thomas P. Mason

Illustrations by the Author and the U. S. Slide Company

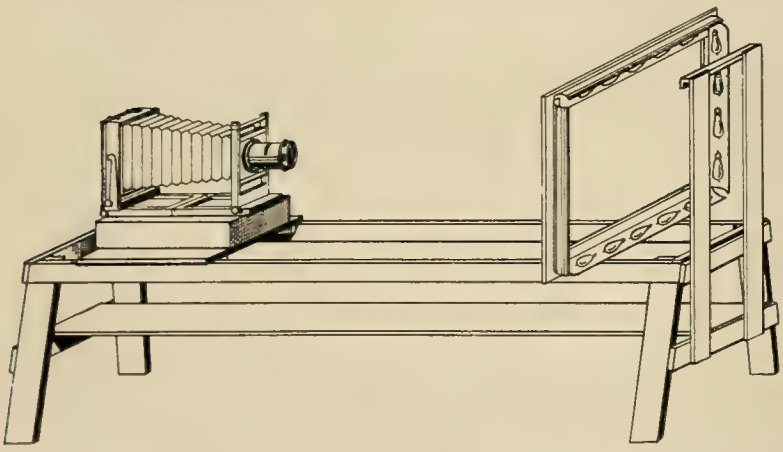
The making of good lantern slides for commercial purposes consists of producing, in one finished piece of work, the two extremes of contrast, viz: crystal clarity in lettering and design on a background of solid, impenetrable black. This statement embodies the commercial slidemaker's creed, so bear it well in mind. A slide so thin that the light glows through the background, leaving the lettering with a weak and washed out look when projected on the screen, is hardly less objectionable than the one so heavy and clouded all over that it is hard to determine just where the edges of the muddy looking letters leave off and the Stygian blackness of the background begins. It is all well and good for the amateurs to make warm-toned slides from his landscape negatives, but the public and the user of slide advertising demands cold, black tones and clear, keen-cut letters.

One should, at the start, classify his possible customers according to their lines of business, and then make up a set of cards or pattern designs for each kind. These should be suitable for the baker, the barber, the butcher, the dentist, the grocer, and as many others as the capital will permit. Such layouts, as they are called, are usually made by professional advertising or newspaper artist who is looking for a little extra income. Occasionally the customer will have ideas of his own as to the combination of words and pictures best suited to his purpose, that of increasing trade, but if one wants to collect the money, it is best to have on hand some ready-to-serve designs that he can get out at once.

Having gotten together a good assortment of designs for different lines of business, one should make up a number of catchy, attractive announcement

slides for "movie" theaters, such as "Welcome", "Let's all meet here to-morrow night", "Don't Smoke,—Remember the Chicago Fire", "Don't spit,—Remember the Johnstown Flood", "Good Night", and the like. Lastly, get together a few dozen well executed borders and scenic designs with blank spaces in striking settings so that a business announcement, a few well chosen words, or other matter, will be shown off to advantage when lettered thereon. A few "make-ups" with blank spaces to represent billboards, should be kept on hand. Using these, the advertiser can write in his message with an ink made especially for this purpose and secure quite satisfactory results. The best camera for the work is a 5x7 view with all the bellows extension obtainable. To this should be fitted a reducing back taking a 4x5 holder. On the ground glass, center the outline of the Standard or Heese lantern slide mat opening.

Fit the camera with an 8x10 portrait lens of the old Petzval type, one having a slot in the barrel to accommodate removable diaphragms. If there are no stops, cut one about f-45 from a piece of sheet brass, blackening it with some nitric or sulphuric acid. Mount the camera on a stand built out of 1x4 mill lumber. At the end, as shown in the illustration, erect two standards to carry a frame with an opening 36x42, patterned after a printing frame, with glass front and removable back. This stand should be at least twelve feet long, four feet high, and with a ten or twelve inch board extending from one end brace to the other, as shown. Paint all except the camera and the glass in the frame a good dead black. Make a second frame, 42x48 to stand a foot in front of the one described. Make this of 1x2 mill stuff, and with strips of tin, bent to an angle, arrange sockets for five electric light bulbs on each long side and four on each short side. These lights should lie flat to the tin reflectors instead of sticking out from them at an angle, and the reflectors should be so placed as to keep the light from the camera while throwing it on to the printing frame. The illustration should make this clear. Paint this frame black on the side towards the camera and white on the other side. The eighteen lamps give one thousand and eighty watt lighting on the copy if sixty watt Mazda lamps are used. These are better than one or two high power arcs or nitrogen lamps, as these last tend to centralize the light; whereas, what is needed is diffusion to give even strength to the negatives. Of course, a switch to turn the lights on and off, as required, must be cut in and located at a convenient point within easy reach.



SOME TYPICAL EXAMPLES BY THE U. S. SLIDE COMPANY

With the equipment as described, one is ready to proceed. Lock the copy in the frame, focus the camera so that the image is sharp when it just fills the line enclosed space that represents the inside of the mat of the finished slide. Make the exposure and you are ready for the dark-room. I use Standard lantern slide plates for camera work and Standard Slow lantern slide plates for the slides proper. Making this negative is nothing more or less than our old familiar friend the enlarging, reducing, and copying stunt that can be done with any camera. One has a certain size and dimension into which all designs must be made to fit. If the image of the copy is too large move the camera back and again focus sharp; and, if the image should be too small, simply move the camera up closer until it covers the desired space; see that the focus is sharp and keen,—and then shoot. Not a few rather complicated contraptions intended for copying work have been exploited by various manufacturers, but none of them are as cheap and efficient as this equipment consisting of a long bellows view camera, a big lens stopped down, plus a little common sense and an honest-to-goodness working knowledge of photography. The average camera of modern construction is a most effective instrument and can be made to do wonders if the man handling it is really capable. Of course, one uses 4x5 holders to fit the reducing back; and, as all lantern slide plates are 3¼x4, these holders must be supplied with kits of that size.

The darkroom in which the action proceeds has a generous work bench, three and one-half feet high. Into one end is set a printing box having a 12x12 ground glass top with a red light over it, a conveniently placed white light on an extension cord, two 11x14 trays for developer and rinse water, two composition fixing boxes holding forty-eight slides each, and plenty of racks and shelves. The printing box, twelve inches square, extends from the top of bench downward so that its bottom rests on the floor below. It is

painted a dead black, except on the bottom, inside, where it is painted a dead white. Half way down the further side of this box is a small boxed-off, covered space in which is located a red light with a white one below. This space opens downward so that the light is thrown upon the white bottom of the box from which it is reflected upward to do the printing. For further diffusion a collar, one inch high, is tacked around the top of the print box, and over this is placed a sheet of ground glass. A treadle, to be worked with the foot, should be so arranged that the white light is turned on when it is pressed down, and shut off when the spring is released by raising the foot. The red light, which is always on, enables the operator to adjust the slide plate so that the design

THE STREAM ALONG THE PASTURE'S EDGE

on the negative comes exactly in its center before turning on the white light for printing. When the white light is on, the red light, being above, has no effect.

Having developed the negative, and fixed, washed and dried it under an electric fan, the next thing is to scrape off any marks or spots that are not to appear in the finished slide. This includes the removal of such stains as would hold back the light and make weak thin places in the background. One must also blacken any weak places and fill up any clear spots in the letters and designs that are to be clear in the slide. This preliminary work is all important and a great time-saver where a couple of hundred slides are made every day.

Take the negatives into the dark-room and place them just beyond the top of the printing box. Open and select enough slide plates to fill the order in hand, and lay them, emulsion side down, on a clean box cover at the right. Make it a practice to keep all material up off the table and thus avoid possible damage from dust, dampness, resins in the wood or drops of chemicals that are sometimes accidentally spilled and allowed to soak in. With the left hand place a negative on the glass top of the printing box, emulsion side up; and with the right, place a lantern plate on top of the negative, emulsion side down. As

the design is seldom located squarely in the center of the negative, the lantern slide plate must be shifted around until the design is centered and straight, the red light making this quite easy. Press down the treadle and let the white light shine about five or six seconds to make the exposure. A light strong enough to print in less than five seconds is liable to cloud the clear parts without giving full density in the background. One can save much time by exposing four or five dozen slides and then develop them all at once. Some operators print and develop simultaneously, but the time consumed in washing one's hands free from developer and hypo and then drying them on a towel, totals up to a startling amount, as one will find if he will just count seconds on himself while

THE FAMILY SPENDS A DAY IN THE COUNTRY

doing these necessary things. Some may think they can successfully handle dry plates with wet, chemically soiled fingers, but it is only necessary to "lookee-see" some of the strange and fearsome apparitions that are thrown on the movie screens all over the country to realize the mistake made in taking such chances.

First, give full attention to the printing and then to the matter of finishing the job acceptably. A properly timed slide should not show any sign of an image on its creamy surface for three seconds after being placed in the developer. Here is where the 11x4 trays saves time, as it will take six slides at once and the six should all "get ripe" together. Let them develop until the clear parts or high lights just start to turn from cream color to deep pink and the backs show the faintest trace of dirty white between the black of the backgrounds and the glass; then rinse quickly and put in the fixing bath. Slides are sufficiently fixed when they are perfectly clear of any creamy look.

In slide making, as in other crafts, there are exceptions to the general rule. Weak portraits and about seventy-five per cent of the kodak prints that come in for slide reproduction can only be given enough exposure and development to make the figures show on the screen decently, and that means about one-third to one-half the usual time, in both cases.

When the slides are fully fixed, pour the solution out of that fixing box into the other, without removing the slides. Then pour over them the clearing solution; and, after two minutes therein, remove and wash for fifteen minutes.

In 1914, just after the war in Europe broke out, the firm I am with bought up all the metol in sight, having, at one time thirteen pounds in stock. As only about thirty grains are used each day, the various substitutes offered have only recently become of sufficient interest to warrant investigation. Three of these, Monomet, Fredol and Duital, have been found not only satisfactory, but perfectly so without any revision of our original Metol-Hydroquinone formula, which reads as follows:

A:	Water	24 ounces
	Metol substitute	15 grains
	Hydroquinone	150 grains
	Sodium sulphite, anhydrous	3 ounces
B:	Water	16 ounces
	Potassium carbonate	3 ounces
	Potassium bromide	20 grains

For use, take three parts of A to two parts of B. This will do the work without rocking the tray. The fixing bath is the regular Eastman formula, as follows:

A:	Water	96 ounces
	Hypo	2 pounds
	Sodium sulphite, E. K. Co	2 ounces
B:	Water	32 ounces
	Chrome alum	2 ounces
	Sulphuric acid, C. P	¼ ounce

Be sure that the chemicals are entirely dissolved, then pour B into A slowly while stirring A rapidly. This bath will remain clear and fix clean after long continued use, but should be replaced as soon as it becomes exhausted. The clearing solution is simply one ounce of copper sulphate and one ounce of sodium chloride in every one hundred ounces of water. After each use pour this solution back into a jar, using it over and over until exhausted. Slides can be thoroughly washed in five minutes in warm weather if running water is used, but they should have fifteen minutes' washing in winter. It is best to have the water supply outside of the dark-room so that the slide-maker can do the printing and developing while his assistant clears, washes and tests the density of the backgrounds, in a good light.

After washing and drying the coloring and finishing is the next step. Not everyone will make a good color artist, but a few simple instructions will perhaps be of value. Blues and purples are used to give an impression of distance. Greens belong in the foreground as they give a "near" effect. As far as possible the natural hues should be used in landscapes and objects of a well known color. Yellows, reds and oranges are most generally used to color letters, the blues and purple only on the larger ones. As a rule, small letters should be left white, but very light tints may be used. In coloring slides the emulsion is first evenly moistened with clear water, and then, delicate tints

are worked on in layers until the desired depth of color is secured. Care should be taken that the color solutions are not so strong as to give dark and bleary results. There are several good brands of water colors carried by the dealers and preference should be given to those that dissolve with the least amount of sediment. The coloring finished, block out all pinholes and weak places in the background with a thin solution of lampblack, stick a strip of film with customer's name photographed on it in the clear at the bottom, put on the mat and cover glass, bind with passe partout tape, wipe clean of finger marks and the work is done.

This doesn't sound so very complicated, does it? Be it known, however, that there is hardly one photographer out of fifty that can make a decent commercial lantern slide. One can give one of the other forty-nine full instructions, mix the developer for him, place rafts of material at his disposal, and he will slosh and flounder around, finally drifting into a system of make-shifts, the natural results showing all too plainly on every "movie" screen in the country.

Finally, do not go into the commercial slide business on a shoestring basis, cutting prices to ten, fifteen and twenty-five cents, and expect to last after your original capital is expended. It costs an average of thirty cents each to make and market the slides. If one cuts the quality in order to lessen the expense, he never secures a second order, and it is on the repeat orders that the profit is made. If one cannot turn out slides that are worth from seventy-five cents to a dollar and a half, he had best buy Liberty Bonds with the money to be invested and be on the safe side.

Decorative Art is what may be used in a certain position with propriety; that which is seemly, becoming and fitting. That such work should naturally be pleasing and attractive to the eye follows almost as a matter of course; but this we see was not the fundamental idea, and no matter how charming a thing may be in itself, if it be not fitted to its position, it is not truly decorative. —F. Edward Hulme.

HOMEWARD BOUND — By F. A. PRESTON

The Why and How of Color Filters

By Frank B. Howe

With Illustrations by the Author and the Eastman Kodak Company

Have you ever, at the behest of your friend, tried to copy a beautiful "firelight" picture, the kind that is stained red? Or did you ever try to make a copy of that picture of mother that baby spilled the yellow ink on? And did you give the job up in disgust? Then read on, for right in the beginning I make the statment that there is no object under the sun that cannot be successfully photographed no matter what its color or combination of colors. And, having made this statement, I will endeavor to prove that it is absolutely true.

In the first place, as photographers, we work with light; light that is white or nearly so. And of what is this white light made up? Just three single colors: red, blue and green. If you want proof, take three stereopticons; in one place a blue slide, in another a red slide, and in the third a green one; and then project the light from the three onto the same spot. The result will not be light of any color, but white light. White light, then, is made of red, blue and green.

THE PAINTING, "AUDREY AND TOUCHSTONE", by Hon. John Collier, as photographed on ordinary plate.

Taking for example, blue and red flowers with their green foliage, the blue will appear dark to the eye, while the red and green will seem comparatively bright. As ordinarily photographed they come just the opposite. The blue flowers will be light, almost white, while the red ones and the green leaves and red flowers will be black or nearly so. If we attempt to copy a picture the white parts of which have been stained red, we get an all-black picture, don't we? If we attempt a portrait of a young lady in a pink dress with a blue curtain behind we get her as if dressed in a dark color standing before a light background.

In photography, as we all know, the result depends upon the light

affecting the silver emulsion with which the plate is coated. And this emulsion is very sensitive to blue light, less so to green, and least of all to red. That means that blue will produce a heavy black deposit of silver on the negative, green only a little, and red hardly any. Then, when we make our print, the blues come out white, the greens a gray and, since there is little or no silver deposit on those portions of the plate, the reds will come a heavy black.

THE SAME PAINTING—Photographed on Wratten Panchromatic plate, using Wratten "K2" filter

Turning to the different plates at our command, we find that there are, roughly speaking, three classes. The first, being known as color-blind, includes all those ordinarily used, such as the Seed 23, Seed 26X, Seed 27, Seed 30, Cramer, Crown, Vulcan and numerous others. These plates are coated with an ordinary silver bromide emulsion and when used for a picture the blue light makes its heavy deposit, the green its lesser one and the red its little or none. Consequently, we get our blue rendered as light in the print, while it is in reality a dark color; and our greens and reds come dark, despite the fact that both are really brighter than the blue. We are now getting somewhere. What we want is something to hold back the blue light and give the red and green a chance to work, to impress the plate. Let's go back to our three projectors. We will turn off the

PHOTOGRAPHS OF AN INLAID DARK MAHOGANY BUREAU—At left on ordinary plate, at right on Wratten Panchromatic plate using Orange-Red "A" Wratten filter

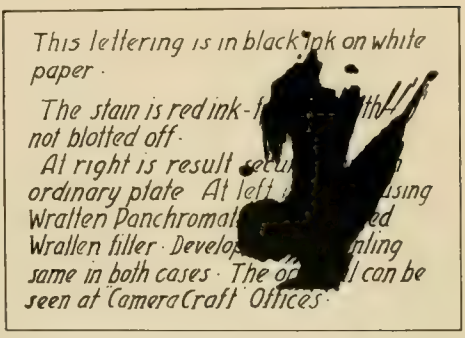
PRINT WITH YELLOW STAIN—Photographed on ordinary plate

green one and what we find on the screen is green light, though no green light is being projected, as we turn off the green. Here is the answer. We saw that white light was made up of red, green and blue, and we were projecting white light through our three colored slides. The blue slide took up all the blue and red rays in the white light from its projector, the red one took up all the red and blue from its projector; but, there being nothing left to take up the green, the green is what we got on the screen. From this then, we have no difficulty in formulating the rule that: Any of these three colors has the power of absorbing the other two. This brings us to our second type of plate.

The term orthochromatic, as applied to a plate means simply this: the plate has its emulsion stained a yellow which holds back the blue and red and gives the yellows (green) a chance. But it is impossible to stain the emulsion deeply enough to hold the reds and blues back sufficiently, so we must use a yellow colored filter to help out. But even this will not give us perfect rendering of the reds, so we must look for still another plate on which to secure more perfect results. This brings us to the panchromatic, a plate that rightly photographs red and green but does not cut off enough of the blue light. As be-

SAME SUBJECT—On Wratten Panchromatic plate with "G" Wratten filter

This lettering is in black ink on white paper · The stain is red ink-full strength-not blotted off · At right is result secured with an ordinary plate · At left is result using Wratten Panchromatic Plate and red Wratten filler · Developing and printing same in both cases · The original can be seen at CameraCraft Offices ·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Wratten filler · Develop
same in both cases · The
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fore, we help out with a yellow filter and then get perfect rendering of all the colors in their proper relation to one another.

So far so good, but "How does this apply to other than landscapes and the like?" you ask. Simply in this way: from what we have just found out we deduce the general rule that: to prevent any color from affecting the negative, we must use a filter of that color, which is equivalent to saying that to photograph any color as white we should use a filter of that particular color and a panchromatic plate. We are now prepared to photograph our firelight print, aren't we? All we need to do is to take a red filter and a panchromatic plate, make the picture, and the red stained whites come out as white, while the black remains black. Black will always photograph black, despite the filter; and likewise, white always photographs white. To copy the print that had the yellow discoloration, we simply use a yellow filter and our panchromatic plate and the finished print will present no evidence of the stain.

One little sidelight that should not be overlooked is, that in developing panchromatic plates, we must use a green light for the reason that these plates have been made sensitive to red and our ordinary ruby darkroom light will be almost the same to a panchromatic plate as would a white one.

The panchromatic plate is, of course, also sensitive to green; but our eyes are so constructed that we can see extremely well in a green light, and therefore, by using a very little such light, we can watch the development while the light, being very weak, does not harm the plate. Of course, one should use as little of this light as possible, turning it off whenever it is not required.

As to filters, a yellow one, the Wratten K2, will probably be enough for amateur work. The commercial photographer, however, should have on hand the eight most important Wratten filters. These are designated: K1, K2, K3 and G, all yellow filters having various degrees of intensity, and, A, B, C and F, which are red, green, blue and deep red, respectively. With these filters and panchromatic plates there is nothing under the sun that cannot be photographed successfully.

As to exposure, filters increase the time somewhat, depending on their color. For that reason the three yellow filters are recommended. When copying, and the like, use the deepest, or K3 filter, but for a moving object it will be necessary to use a lighter one in order that the exposure need not be too long. While the result achieved with the light filter will not be perfect rendition, it will be infinitely better than that secured on the usual color-blind plate. For

all around work, using orthochromatic plates, the K2 filter is the best. The approximate increase in exposure is as follows, the figures being those of the Eastman people:

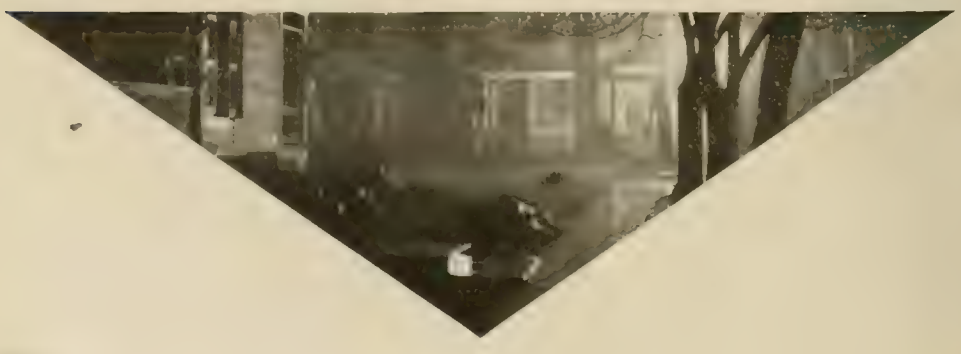
Filter K1	Panchromatic plates	1½	Orthochromatic plates	3
Filter K2	Panchromatic plates	3	Orthochromatic plates	15
Filter K3	Panchromatic plates	4½	Orthochromatic plates	25
Filter G	Panchromatic plates	8	Orthochromatic plates	30
Filter A	Panchromatic plates	12		
Filter B	Panchromatic plates	10	Orthochromatic plates	12
Filter C	Panchromatic plates	6	Orthochromatic plates	5
Filter F	Panchromatic plates	24		

In conclusion, let me summarize what I have tried to say in such a manner that it will be quickly available:

To photograph several colors together, as in landscapes or subjects composed of objects of several colors; use a K3 filter and a panchromatic plate.

To photograph any color, as white; use a filter of that color and a panchromatic plate. To amplify this last and for convenience in referring thereto, I am appending instructions given by the Eastman Kodak Company, which read as follows:

Scarlet red; to photograph dark use ordinary plate (Seed 23, 26X, etc.); to photograph light, use Panchromatic plate with red A filter. Deep red; to photograph dark, use ordinary plate (Seed 23, 26X, etc.); to photograph light use Panchromatic plate with red F filter. Magenta and purple; to photograph dark use Panchromatic plate with green B filter; to photograph light use Panchromatic plate with red F filter. Yellow; to photograph dark use ordinary plate (Seed 23, 26X, etc.); to photograph light use Panchromatic or Orthochromatic plate with yellow G filter. Yellow green; to photograph dark use ordinary plate (Seed 23, 26X, etc.); to photograph light use Orthochromatic plate and yellow G filter. Bluish green; to photograph dark use Panchromatic plate with red A filter; to photograph light use Panchromatic plate with green B filter. Blue; to photograph dark use Panchromatic plate with red F filter; to photograph light use ordinary plate (Seed 23, 26X, etc.). Several together correct with K3 filter and Panchromatic plate.



Amateur Portraiture

A Dollar's Worth of Advice

With Illustrations by the Author

One of my correspondents desires a "Dollar's Worth of Advice" on the subject of portraiture. He asks me numerous specific questions which I will not enumerate. His equipment is a 3¼x4¼ roll film camera, and someone has given him a portrait attachment which he does not understand how to use.

"Dear Mr. C——————:

"From your letter I gather that you are fairly well grounded on the general principles of photography. You do your own developing and printing. You have had enough experience so that you pretty well understand how to get good results on outdoor and indoor views under different conditions of light, but the few attempts you have made at photographs of people have been disappointing.

"Let us consider the portrait attachment first, since that has bothered you especially. This is a supplementary lens in a cap-like mount which slips on over the front of the lens on your camera. With the portrait attachment thus placed the lens becomes of shorter focal length than it was before. Whereas, without the attachment the nearest you could get to an object and photograph it in sharp focus was six feet, with the attachment the same extension of camera - front brings into focus objects that are less than three feet away from the camera, and thus gives a larger image of them in the picture. That's all there is to it. Unless you know that the portrait attachment was intended to be used with your particular camera or one like it and unless you have the printed directions

OUTDOOR PORTRAIT—Enlarged from part of 4x5 film negative. Subject six feet from camera. Focused by scale. Stop f-6.3, one-fifth second exposure

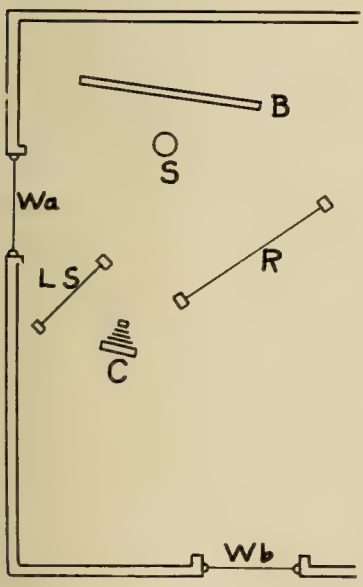
which originally came with the attachment, you will not be sure about the focus and distance of objects, but you can find this out for yourself. Get a piece of finely ground glass $3\frac{1}{4}$x$4\frac{3}{4}$ inches; that is, the same width as the picture your camera takes, but half an inch longer. When the camera is free of film, remove the camera-back and place the glass in the position occupied by the film with ground side of glass toward the lens. A rubber band at each end will hold it there. Now open the lens and with your portrait attachment in position, extend the front until the scale indicates six feet. Next find and measure the distance from the lens to an object that is actually in focus, and either mark this distance on the focusing scale or make a memorandum of it elsewhere. Do the same with the indicator set at other distances by the scale. You will then be able to put your portrait attachment to practical use.

AMATEUR PORTRAIT—Enlarged from $2\frac{1}{4}$x$2\frac{1}{4}$ film negative. Made in improvised studio in a barn, no reflector used. Stop f-6.8, one-tenth second exposure

"And by the way, while you are at this measuring and marking business, while the portrait attachment is in place and the ground glass is at the back of the camera, focus sharply on some distant object, one hundred feet or more away. Then make some mark on the camera so you can be sure of the exact focus for a distant object with the 'portrait' attachment when your camera is loaded with film. This isn't for portraits, of course, but it is a wrinkle that may come in mighty handy some time when the regular lens will not include quite so much in the picture as you want, for the portrait attachment's reducing the focal length of the lens also makes it include a wider angle.

"A suitable background is of the utmost importance in portraiture. Amateurs are prone to pose their victims in front of and in close proximity to a picket fence or a brick wall. Don't do it! Such a background detracts from the face and figure of the portrait. Indoors the same is true of a boldly figured wall paper. The best background is one that is not obtrusive in any way. It should be neither jet black nor pure white nor contain any clearly defined design.

INDOOR PORTRAITS—Enlargements from parts of 3¼x4¼ film negatives. Made by double window lighting, no backgrounds nor reflectors. Stop f-5.4, one and two seconds exposure respectively



CONVENTIONAL ARRANGEMENT FOR PORTRAITURE—S, Sitter; B, Background; C, Camera; R, Reflector; L S, Lens Shade; Wa and Wb, Windows. Lower half of window Wa should be blocked out; and, if there is a window at Wb the reflector may not be needed

Shades of gray or tints which photograph gray are best. I like a clouded background such as the supply houses sell, on a roller. These can be hung up most anywhere, indoors or out. Of course, the amateur does not always carry a background around with him. Outdoors a suitable setting for a figure is a mass of shrubbery, in shadow and kept out of focus. Beware, however, of a background made of shiny leaves that catch the light. Indoors the plain wall of the room may be all right, if it is really plain; or a dark blanket, table cover, or portiere may be pressed into service. The main thing is to have the background so modest and subdued that it will not be obtrusive in the picture.

Illumination for portraiture should be soft and diffused, rather than harsh and concentrated. Outdoors in the shade it is easy to find a soft lighting; in fact, it is apt to be too much so. By trying the effect at different points, however, one may find a spot where the light that falls on the subject from one side is noticeably stronger than that falling on the other, although the features on the less strongly lighted side will show

no really heavy shadows. That is what we want. Indoors the difficulty is to avoid harshness. The brightest light should always be from one side; that is, somewhat to one side. Shadows that are too deep must be lightened, either by reflection from the principal light or by diffused light from other sources. Let me be more specific. Suppose the room has but one window. Then all the light comes from one source, and the lighting of the shadows on the side of the subject away from the window must be by reflection from the principal light. The reflector may be a white cloth or paper supported by a screen or attached to a chair-back or hung from a lighting fixture. White walls and woodwork may reflect enough light without any special reflector being needed. Again, suppose we have a room with two windows, one on the side and one on the end. In such a case we may cover up one window altogether and go ahead with only the light from the other, as if there were only one window. Or, we may use the light from the second window, the one farther away from the subject, to lighten the shadows, without a reflector. This is 'diffused light from other sources'. If there are white shades it will probably be best to draw down the shade at the second window, for the secondary light must not be too strong. The angle at which the principal light strikes the subject is important. Forty-five degrees is the ideal. To attain it we will have to cover up the lower part of the window. Different subjects demand different lighting. The suggestions I have made are simply suggestions, they are not hard and fast rules.

AMATEUR PORTRAIT—Made by lighting from two windows as suggested in diagram. Enlargement from $3\frac{1}{4}$x$4\frac{1}{4}$ film negative. No background nor reflector. Stop f-4.5, two seconds exposure

SELF PORTRAIT—Made with thread attached to shutter release. Enlargement from 2¼x2¼ film negative. Clouded background, no reflector, two windows. Stop f-4.5, one-half second exposure

"Shade the lens from the direct light. This is almost as necessary as it is to keep the direct rays of sunlight from the lens when doing landscape work.

"Full exposure and somewhat shortened development are necessary to preserve delicate modeling and shadow detail. No matter how carefully and painstakingly you manage the lighting of the subject, you will spoil it all by insufficient exposure or too prolonged development, or both.

"Six feet is about the minimum distance allowable between the camera and the subject for a head and shoulders portrait. You must have seen the ridiculous photograph of a person with his feet extended toward the camera and only a few inches away from it. The picture shows the feet many times as large as they ought to be, compared to the rest of the figure. Something of the same nature, though not so noticeable, happens to a person's features when the camera is much nearer than six feet. If you follow this rule you see the portrait attachment won't be much use to you for portraits after all. And it is really better to have the camera six feet or more from the subject, and then to enlarge if the image is too small on a direct contact print. Try it both ways and see for yourself.

"Film is just as capable of good portraits as plates, but it is a distinct advantage to be able to focus on the groundglass. The focus must be very, very accurate in portrait work; and so, if you have to depend on tape measure and focusing scale, as you will with roll film, I would advise you to test the accuracy of the scale on your camera, using the groundglass as explained in the first part of this letter, whether you use the portrait attachment or not. Sharpest focus should be on that feature of the face nearest the camera. If the face is turned a little sidewise, for instance, the eye nearer the camera should be exactly in focus, even if the farther eye is a trifle out of focus. If you err at all, err on the near side; that is, have the sharpest focus nearer the camera than the subject, rather than farther away.

"Practice makes perfect. You must have someone to practice on. I suggest that you be your own model. Make photographs of yourself, exposing by means of a stout thread attached to the shutter release, or with one of these 'Wait-A-Minute' contrivances. This appliance is designed primarily so the photographer may include himself in a group picture, but in your case the photographer will be the whole group. Seriously, you can get good practice this way. You can fuss around indefinitely and experiment with different lighting effects, which you can judge with a hand mirror. Take all the time you want and get the thing down fine before you operate on someone else who may not have as much patience with you as you would have with yourself.

"Something more than all I have yet written about is necessary for successful portrait work. Knowledge of lighting, exposure and development may result in a technically perfect photograph, which may be all that is desired for a landscape or the representation of an inanimate object. Portraiture demands good technique, surely; but it demands something more than that. The person portrayed must show in the picture an interested, animated expression. And this is mostly up to the photographer. He must not be nervous and fussy or this nervousness and fusiness will surely communicate itself to the subject and result in an unsatisfactory expression. I shall never forget having my portrait

made when I was a mere lad. The photographer had me look first this way and then that, spent ten minutes or so in adjusting the position of a hand, and got me so tired and out of patience before he finally made the exposure that I felt like crying. And that's just the way the picture looked. Don't do it! Rather, be pleasant and tactful. Put the subject at his ease. Engage in a little conversation, and if you can make the exposure without the subject's knowing just when it is done, so much the better. Try to get a pleasing and characteristic likeness as well as a technically good photograph.

"There is much more that I might say to you, but perhaps I have already said too much. Portraiture is difficult, but it is very interesting. I wish you success. Please let me see some of your results, and if I can be of further assistance don't hesitate to call on me.

"Wishing you all success,

(Signed) "CHARLES F. RICE.

"Mamaroneck, N. Y., July 17, 1917."

Experiments With Soft Focus Lenses

By Carl T. Thayer

With Illustrations by the Author

Some ten years ago an examination of one of the soft focus lenses then on the market lead me to believe that at least that particular one was nothing more or less than the ordinary single achromatic lens of one of our American manufacturers that had been given a different appearance by reason of a somewhat different mounting. Running across an old style Darlot single lens that I could purchase for a song, I possessed myself of it. The stops were in the form of separate brass plates that fitted into a slot in the barrel of the lens. Taking the one having the smallest opening, which I felt quite sure I would never use, I enlarged its small aperture to a diameter somewhat greater than that of the largest one supplied with the lens.

Experimenting with my purchase, I found that, when used with a large stop, it was a very fine soft focus lens, although I did not always get what I saw on the ground glass. This I learned was due to the fact that, in this type of lens, the visual and chemical focus was not the same. In order to focus the chemical rays on the plate so that I would get the effect seen on the ground glass, it was necessary, after composing the picture and securing the visual focus on the ground glass, to rack the lens out about the sixteenth of an inch.

As the lens was a small one, one that could be used practically at a fixed focus for objects at a normal distance, I arranged to simplify the matter of focusing by making a mark on the bed of my camera to show where the front

THE EDGE OF THE CORNFIELD—WINTER

should be racked out to secure the best results on subjects having no near foreground objects that are wanted in the principal focus. When the plane was wanted fairly sharp a little more distant, no variation was made, but when such plane was nearer the camera, the lens was placed a little forward of the mark.

Using my soft focus lens in this manner I found it very satisfactory, and as the work I did with it interested my photographic friends, I made it a point to buy up all the old Darlot and Waterbury single lenses that I could find.

AFTERNOON SUNLIGHT ON THE SNOW

As these lenses are practically obsolete they cost but a trifle, and I find that, as a rule, re-surfacing causes them to give better definition over the entire plate, although it sometimes has a different effect. While re-surfacing a high grade lens like an anastigmat is practically out of the question, doing this can hardly have any ill effect upon a simple achromatic lens, for the reason that a slight change in the focal length or a slight decrease in definition may be an advantage rather than otherwise.

As the lens is made a very fast one by enlarging the stop, it is advisable to go to the expense of a shutter, despite the fact that it will hardly be used for moving objects. These lenses let in such a flood of light that a shutter is necessary in order to get the timing anywhere near right. I also find it expedient to reduce the speed by using a ray filter. Doing this not only cuts down the exposure but it adds greatly to the quality of the results by increasing the orthochromatic effects.

THE GLISTENING BROOK

A soft focus lens of this kind is quite inexpensive and the advantage of getting good color values and making one's exposures with a quick shutter is well worth the little experimenting that is necessary to determine just where the best position of the lens is located. As a rule it is only necessary to rack the lens forward about one-sixteenth of an inch after composing the picture and securing the visual focus on the ground glass. Should an experiment prove this to be the case, the bed of the camera can be marked to show when the lens is set at that point. Then, when the principal plane desired in fairly sharp definition is located in the immediate foreground the lens can be racked out just a trifle further, and if this plane of maximum sharpness is somewhat further away than ordinarily, the lens need not be racked out quite so far. It will require only a very few exposures to determine the best position; and, as these lenses, used with large stops, seem to take care of both the foreground and distance in any case, the general effect is almost sure to be pleasing.

BIRCHES BY THE BROOK

FAIR FIELDS AFAR

I suppose this is all rather unscientific and not according to rules, but it gives me results that are pleasing and a number of my friends have also found satisfaction in using these lenses. Someone more versed in photographic optics may be able to say definitely just what effect the re-surfacing may have, and why, and how the proper focusing point is established, and otherwise clarify the matter. Their so doing would be interesting and I am sure that others as well as myself would appreciate the information.

It is characteristic of decorative art that it depends almost as much upon the critical as upon the creative faculty of the artist. More than any other art it depends upon taste; and by that test it stands or falls. It is taste that determines—what is it that it does not determine in decoration? It settles in the first place whether there should be decoration at all, how much of it, of what kind, where it shall be introduced, and how executed. It prescribes what is wanted, what is admissible, and what is becoming. Every work of applied art is a problem, and the most important factor in its solution is taste.—Lewis Foreman Day.

A Home-Made Enlarging Apparatus

By Harry A. Brodine

With Illustration by the Author

THE AUTHOR—A HOME PORTRAIT

Having a strong desire to make my own bromide enlargements from my negatives, though not being able to have the work done exactly to my liking by those engaged in the business, I decided to attempt the construction of an apparatus that would be capable of satisfying my wants in that direction. In addition to enlargements, which I could have made, I particularly wished to be able to make enlarged negatives,—these last seemingly not being a part of the work of the commercial finishers, that I might have the choice of a wider range of printing media, such as gum, carbon and platinum, instead of being limited, in my large prints, to the more common bromide.

Studying the matter over I decided upon the plan here described, my excuse for writing this article being that many other amateurs, similarly placed, have the same opportunity, and, a suggestion may be all that they require in order to avail themselves thereof. Like many other amateurs, I use the bath room in which to develop my plates. As its window faces the west and is unobstructed, it was necessary to cover it very carefully with an opaque blanket fastened in place with thumb tacks; and, as the upper part of the door is also fitted with glass, it had to be covered as well. When doing my developing I used two boards, about twelve inches wide and long enough to reach across the tub, hinged together, and these are still employed. They are folded together when not in use, and slid under the tub where they are out of the way until wanted. Needless to say, I use the same means when making contact prints as I do in developing plates, except that I now employ an easy sliding piece of yellow glass, to which a cork has been cemented for a handle, which per-

THE HILL PASTURE IN SPRING

mits me to expose the paper and yet have a safe light the moment it is slid down over the opening.

As now arranged everything is a great deal handier and there is not required so much preliminary fussing about before one is ready to begin actual work. Being myself one of those impatient individuals who often make a muddle of things in their desire to shove the plates into the developer without being at all certain that the various solutions and their ingredients are properly compounded, the speed and security which my present arrangement permits will no doubt appeal strongly to others of the same class. It might, perhaps, as it has done for me, lift the quality of their results to a much higher standard.

To get to the actual work of constructing the apparatus, I first secured a piece of half inch white-wood, ten inches wide and sixteen feet long, from a nearby lumber yard, the cost being sixty cents. This was sufficient material to cover the window, form the base board and also the easel. Different conditions will of course require a longer or shorter length of lumber; for example, a longer base board and a larger easel will necessitate more lumber than my modest equipment for enlarging only up to 10x12 inches. The only tools necessary are a saw and a screw-driver, both quite certain to be found in any household, and the sixty cents mentioned is practically the only item of cost. I first sawed two pieces a trifle over four feet in length, these just cover the window, which is nineteen inches wide and a little over four feet high; then, placing them side by side I marked the outline of an opening, in my case 5x7 inches, in the center of the blind so formed. This should be at the proper height so that the back of the camera comes up against it when in position for use. A good way

to determine the proper height is to first decide upon the size of the easel and then make the center of the opening and the center of the easel, as the latter stands on the base board, the same. Following the outline marked, I next sawed a 2½x7-inch piece out of each board and then joining them together by screwing strips of wood across the back. I then planed the sides and ends of the screen so formed so that it would fit snugly in the window-frame and tacked strips of velvet around the edges and along the crack where the two boards joined in order that no light could creep in. The next step was to sandpaper the edges of the 5x7 opening and fit their sides with grooved strips of wood to hold the ruby glass for developing, or the negative when enlarging. For the glass fitted door opening into the next room, a red shade that can be pulled down is all that is required, as the light from that source is weak, particularly if the curtains in the room are down.

"JANE"

The base board for the camera and the easel is a piece of the same white wood, long enough to extend from the ledge of the darkened window and rest on a box on the washstand at the other end of the bath tub. On this base board is placed a box having a height just sufficient to bring the axis or center of the lens in line with the center of the easel. This last slides forward and back evenly, doing so by reason of a strip of wood fastened on each of its two sides in such a way as to extend a trifle below the baseboard. The

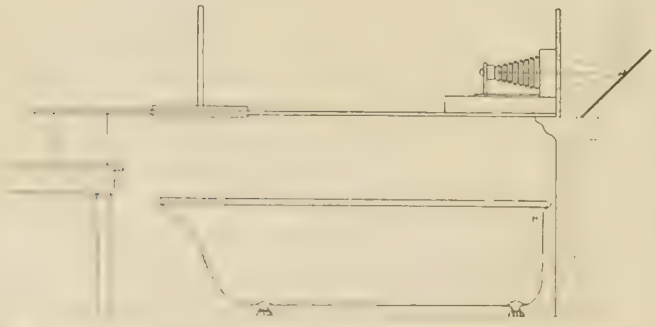


diagram herewith should show, quite clearly, how the various parts are arranged. One can see that it is only a few minutes work to cover the window with the board, set the box on the washstand, put the base board in position and then arrange the easel and the box on which the camera is to rest. Of course, I do not make enlargements very often, but rather wait until I am ready to make at least one-half or a dozen exposures on either plate or paper, or both.

How to proceed after the apparatus is all ready and set up can perhaps be best learned from one of the many good handbooks on the subject, should one not happen to be versed in the matter. The process of enlarging is, however, in itself a rather simple affair after the first fundamental principles are understood, and one is bound to be successful if a little care and trouble is taken at the start. The negative to be enlarged is placed, glass side out, in position over the opening in the board covering the window. The back is removed from the camera, the latter is placed on its box-like support resting on the base board, and its rear brought up against the opening, a focusing cloth being hung over the camera to shut out the light that might enter around the edges. The easel is next moved to one of the lines previously ruled across the base board to show its proper position for various sizes of enlargements. With a white cardboard on the easel, the image is then brought to sharp focus by racking the lens in or out, as found necessary. The amount of exposure required will be governed by the density of the negative, size of the stop, size of the enlargement, speed of paper being used and strength of light outdoors. Covering the lens with my dark ray screen or filter, I pin up the paper on the easel with a few thumb tacks, then remove the filter for the necessary exposure time and replace, taking care not to jar the camera or any part of the apparatus. The exposure made, the paper is removed from the easel, the base board lifted aside and the print developed in a tray on the boards across the bath tub as already described. Fixing is done in a second tray and washing is achieved in the bottom of the tub below.

RIGHT IN THEIR ELEMENT

In making enlarged negatives more care is required. It is necessary to first have a positive from the small negative, and this is easily made by contact

in a printing frame. The positive so secured is used for making the enlarged negative just as a small negative is used for making the positive print or enlargement on bromide paper. After focusing on a piece of white cardboard, the same size and thickness as the plate to be used, I take the red lamp and place it in one corner so as to see what I am doing, place a regular cap on the lens, remove the cardboard from the easel and place the plate in position. The exposure is made with the lens cap as it would not do to subject the plate to light coming through a filter as in making bromide enlargements.

To properly locate the plate on the easel I take two strips of cardboard as long as the narrow side of the plate and the same thickness. Letting one strip overlap the other about an eighth of an inch, I fasten them, by means of two large thumb tacks, at the lower edge of the rectangle in which the image is to come. This furnishes a grooved ledge on which the plate rests and another thumb tack at the top of the plate holds it in place. This method lessens the liability of getting anything out of place after focusing and before making the actual exposure. If one prefers, the same kind of a strip may be placed at the upper edge of the marked area and the plate gently slipped in place from the side. These strips should be, of course, put in position in the light used for focusing before the cap is put on the lens and the ruby lamp brought into use.

For plates the exposure is very short compared to bromide paper and one can realize that they are much more sensitive to actinic light; in fact, for making enlarged negatives the room should be absolutely light-tight.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

MENDING PORCELAIN DISHES: To three ounces of sodium silicate add two ounces of LePage's glue and enough precipitated chalk to make a paste as they are rubbed together. Apply to the broken parts, press together and hold with a clamp, and allow to dry in a warm place for at least twenty-four hours.—D. F. G., New Hampshire.

WAXING PRINTS: Take paraffin wax, cut it into fine shavings and dissolve, by shaking in gasoline, using fifteen grains of the wax to each ounce of the gasoline. This, applied to the surface of a print by means of a soft rag, and the surplus wiped off, gives a most pleasing finish, one that is not glossy and shining but one that is quite an improvement over the somewhat dead looking surface of the average bromide print.—John Southworth, Indiana.

SURFACE MARKINGS ON BROMIDE PAPER: I have recently been using a formula for the removal of abrasion or stress markings on bromide paper that was furnished me by a friend who clipped it from one of the foreign magazines. The solution is made up by dissolving one-fourth ounce of borax in twenty ounces of boiling water and then adding five ounces of denatured alcohol. This should be applied with a tuft of cotton and will be found to not only remove all dirt and surface markings but will leave the print with a soft natural surface.—W. E. R., Florida.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, August, 1917 No. 8

Why Is a Professional Photographer?

The Photographers' Association of America will not hold a convention this year, its president announces. For once the leading manufacturers will not be asked to exchange their coin and their efforts for a none too certain return. For once a small number of photographers located within easy reach of the convention town will not be given an opportunity of exchanging the price of a few miles of railroad transportation for their share of the entertainment offered them by these manufacturers. But do not, gentle reader, imagine that an association that has, for so many years, maintained itself by the generosity of some tolerant manufacturers, has, all at once, the power to do what the proverbial tiger finds impossible. In consideration of its not this year exacting tribute for convention display space and entertainment funds, it demands that each of these same tolerant manufacturers take, regularly, one or more pages of advertising in its "official organ". Nice business, isn't it? And so easy to justify the new method employed. What the convention costs the manufacturer being quite obviously out of all proportion to the benefit derived, this new plan has the advantage of apparently offering the victims some slight return. At least, the manufacturer will not be so certain that the toll exacted in the form of payment for advertising space in the "official organ", is a clean loss. Advertising in the regular photographic magazines is profitable, and this "official organ" really looks like a magazine and ought to be read by the members. True, manufacturers have not flocked to its pages with their business announcements, but perhaps they did not know advertisements were wanted. In fact, when this "official organ" was started we were assured that it did not qualify as an advertising medium and no advertising space would be offered. But it all looked so easy, nearly as easy as asking for contributions to an entertainment fund, that the promise was forgotten and advertisements solicited. Interest in the annual conventions has waned until each new one has made it more and more obvious to the manufacturers that the litttle game was not worth the large candles they were contributing, so some brilliant mind evolved the plan of securing funds by forcing unwilling advertising into the pages of the "official organ", while at the same time side-stepping the ever-increasing risk of a convention that would be an ignominious failure.

Let us, in all charity, despite its use of sheep's clothing in entering the field, set aside any discussion of the merits of the "official organ" as an advertising medium, and consider the value of the former conventions as publicity producers. We have only to call to mind the several new forms of apparatus that were heralded at each recurring gathering as the focus of interest among the displays. Are any of these in general use today? Are they even obtainable? Would not the cash and energy expended in putting them "before the conven-

tion", if put into a business-like combination of photographic magazine advertising and intelligent distribution, have assured many of these "convention successes" a measure of real success?

The photographer is urged to have a proper conceit of himself and his profession to the end that the general public may do likewise. Isn't the methods of the association somewhat of a handicap to impose upon the worker who would heed this good advice, who desires the uplift of his profession? The professional photographer would no doubt appreciate being accorded the same respect that is extended to, let us say, the doctor or the lawyer of his community; but, can he imagine the legal or the medical association descending to the methods of the Photographers' Association? As to his own status, let him ask himself what representative body would adopt such methods, and then inquire as to the status of the rank and file so represented, not overlooking the fact that even the Scavengers' Union does not use an "official organ" as a vehicle for advertisements secured by means of a crudely disguised club.

The professional photographers are, as a class, earnest, honorable and intelligent men, and as such, would it not be more seemly for them to claim allegiance to an association that at least partook of some of these characteristics? If a certain element really approved of a "good time" once a year at the expense of the manufacturers, could not that element be allowed to assume the responsibility of exacting the requisite tribute from the manufacturers in their own name and not in that of the professional photographers as a class?

The London Salon of Photography

The executive committee of the London Salon of Photography is bending every effort to make the coming exhibition another success. The question of import of pictures from foreign countries has delayed the publication of the entry forms; but, Mr. Mortimer writes that he has just received an official communication covering that point and these forms will at once be gotten out and forwarded. This office will receive a supply and intended exhibitors can secure copies by calling or writing for them. While the conditions regarding the sending of pictures this year are practically the same as heretofore, it is essential that pictures be not only unframed, but unmounted, and they must be sent by mail in packages not to exceed seven pounds in weight. Pictures sent will, of course, be subject to censorship, and those sending should allow for a possible delay in forwarding. Particulars concerning the prints should be sent separately, accompanied by the entry fee of two shillings and six pence; this, as well as the pictures, being addressed to: Honorable Secretary, London Salon of Photography, 5a Pall Mall East, London, S. W. 1, England, the closing date for entries being September fourth.

Last year a very fine collection of work from this country was received in London, some of which was reproduced in *Photograms of the Year,* and the committee is very desirous that this be repeated in the case of the coming Salon to be held from September fifteenth to October thirteenth, inclusive.

He has succeeded who has discovered and developed his talent and expressed it in service to the world.—HINTON WHITE.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Drying Negatives

Negative drying does not, at first sight, appear a subject about which very much can be written, and many text-books either dismiss it in a few sentences or omit it altogether. Yet it provides many pitfalls for the inexperienced, and a knowledge of them and how they may be avoided will prove useful. It is quite possible to spoil an otherwise excellent negative by treating the drying in a careless or trivial manner, or by letting it look after itself, as is done so often.

After the plates have been thoroughly washed it is always a sound plan to take them one at a time, and holding them in a gentle stream of water to rub the surface with a plug of cotton wool. This not only gets rid of the scum which often forms on the surface of the film, but also removes any specks of dirt which may have been deposited by the water, and which, if not removed, will dry into the film, and print out as minute white spots. In contact prints these are unnoticeable, but they are apt to be troublesome when enlarging, and it is therefore a good thing to get rid of them. After this has been done, the plates are stood up on one corner, or placed in a rack to let the superfluous water drain off them.

With many people this is the end of drying as far as they are concerned, and the plates are then left to take care of themselves. This, however, is a very dangerous proceeding; the plates left in this condition take hours to dry, during which they are exposed to several forms of injury. The worst is probably dust. Very few places are dustless, and every particle which falls on the film will stick in the gelatine, and print out a white spot. In some places too there are insects which seem to thrive on wet gelatine, and the writer has had several plates spoilt by these voracious insects eating small holes all over the film. Gelatine is also much more liable to decompose while wet, particularly in warm weather, due probably to its being an ideal culture for fungi and bacilli.

The quicker the plates can be dried, therefore, the better. The first thing to do is to get rid of as much superfluous moisture as possible. After the plates have drained for a minute or so, the edges and glass side should be wiped quite dry with a clean cloth. Any scraps of film which have got on to the wrong side of the plate can be removed at the same time. The film side can now be taken in hand. This is best done with a smooth handkerchief or piece of fluffless material, which is pressed down in close contact with the film. Another way is to press the negative face downwards on one of the blotting pads which are specially made for this purpose. In either case the effect is the same. After the surface moisture has been blotted off in this way, the negative can either be put up to dry, or its surface may be given a further wipe with a dry, clean handkerchief; it is surprising how much wiping the film will stand—though, of course, it must be done very gently, and care taken not to scratch the surface. One word of warning is, however, necessary. In hot weather, when the film is very soft, these operations cannot be carried out unless the negative has been put through a hardening bath; but this, of course, is also advisable for other reasons.

The negative can now be put up to dry, and, speaking generally, the ordinary racks sold for this purpose are not very suitable. The grooves are usually much too close together, and unless there is a vigorous draught some portions of the plate will take an unnecessarily long time to dry, and uneven drying may result. Much the best plan is to drive a few wire nails into the wall, and to rest the plate cornerwise between two of them, the film side being downwards. In this way they dry rapidly, and no dust can fall on the film. As mentioned above, the chief point to remember is that the plates

must be dried as quickly as possible. Heat must not be used, unless the plate has been specially treated, nor must the plate be placed in the sun, but moderate warmth is useful; in fact, the ideal drying medium is a current of dry warm air. For this reason the best place to put plates for drying is just above the mantelpiece of a room where there is a fire. The plates can be put on nails, as described above, and the fire not only warms the air but also creates an upward draught.

One most important point to be remembered is that drying must be even. If a plate has been partly dried slowly, it must not be placed in a hot current of air to finish it off quickly. If this is done, it causes a difference in density between the two parts, probably separated by a distinct line, and the negative will be ruined. For nothing can be done to remedy this, even re-wetting and drying again will not remove the mark.

If films are used there is practically no other way to dry them than by simply hanging up by suitable clips to a line, preferably in a current of air, and allowing them to dry thus. There are many forms of clips sold for this purpose. In the case of roll films it is a good plan, if space permits, to hang up the uncut length of film on a line (away from any wall) by a "bull-dog" or similar grip, allowing the wet film to hang straight down, clear of the ground. A second "bull-dog" should be snapped on to the lower end of the film to weight it and keep it comparatively taut. The film is cut up into its sections when quite dry.

We have dealt so far only with what may be called the natural way of drying a negative, when it is done without subjecting the plate to any special treatment. It sometimes happens, however, that a negative has to be dried in a hurry, in order, perhaps, to get off some topical prints to the papers. For this purpose there are several methods which can be adopted, which are also useful in particularly damp weather, when it is next to impossible to get the plates dry by natural means in reasonable time.

The most common method is to put the negative after getting rid of all superfluous moisture as described above, into two successive baths of methylated spirit. They are left in each bath for about three to five minutes, and are then put in a warm current of air, or are waved about, and they will be found to be quite dry in about ten minutes. A few words of warning may be given about this process. One that the present commercial spirit, owing to the mineral naphtha in it, causes a whitish scum on the surface of the film, and is therefore not very favorable to clean work. Another, that it cannot be used with films, as the spirit attacks the celluloid. Care should also be taken to see that the plate is really dry before starting printing. It often appears dry before it really is, and unless it be given another five minutes, say, to become thoroughly dry, there is a risk of the paper sticking to the film when it is printing.

When drying negatives with methylated spirit it is essential that the plates should have been thoroughly fixed, otherwise a white deposit may appear in patches in the film, giving an unfixed appearance. When this occurs, the only cure is to place the negative back in the fixing bath until the white patches disappear, and then re-wash and dry again.

A better method of finishing off plates quickly, as it shortens the time of washing as well as of drying, is to use a forty per cent formaldehyde bath. The plates are simply rinsed after fixing, and are then placed in a two per cent formalin bath for about ten minutes. This makes the film so insoluble that it is unaffected by boiling water even. Six washes in hot water will be sufficient to remove the hypo, and drying, which is done by heat, should be complete in two or three minutes. This treatment causes the surface of the film to stand out in relief, but this can be removed to some extent by rubbing with a piece of chamois leather moistened with alcohol. Care should be taken that the brand of plates being used is suitable to this process, as with some makes this treatment causes the film to pull off the glass as it dries. One disadvantage of this process is that it makes the film so hard and horny that it is next to impossible to carry out any further operations on it, such as intensification or reduction.

Neither of these methods gives such clean-looking negatives as those dried naturally, and as they are attended with a certain amount of risk, and the saving of time is not very great, they should be used only in exceptional cases.—H. L. W. in *Amateur Photography*.

Adaptability of the Eye to Illumination

Good seeing is the degree of sharpness by which we observe contrasts and definition in detail, with an amount of light that produces neither strain nor fatigue. It is governed by the amount of light reaching the eye, which, in turn, has to do with intensity, distribution, and color. The eye is like a camera, in that it has a lens, a sensitive surface, and a box between the sensitive surface and the lens. The camera, however, differs from the eye, in that a camera exposes its film for a limited time: if the subject is dark the exposure is long, and if it is light the exposure is short. The eye, on the other hand, has to be exposed all the while to the brightness of the scene that is being recorded. The sensitive material in both the camera and the eye is necessarily destroyed by exposure; otherwise we should never know what was happening at all, since no image would be produced. In the camera it is destroyed or altered once for all, and the exposure has to be calculated, so that the necessary extent of alteration is produced. In the eye the sensitive material is created by the body as it is destroyed, and the amount of the sensitive material, or the sensitiveness of the eye, is adjusted according to the brightness of the light outside. It is as if the camera, instead of giving a variable exposure, gave a fixed exposure, the sensitiveness of the material itself being altered according to the light.

The eye adjusts itself in the range of one million to one, and may be roughly divided into four levels of brightness as follows: The brightest—bright sunlight on a white surface; the indoor average of illumination during the day, which is only one-hundredth of the brightness of bright sunlight outside; the average artificial illumination indoors at night, which is one-hundredth of that indoors in the daytime, and the level illumination at night outside, which is one-hundredth of that indoors at night. We thus see that out of doors at night it is roughly one million times less bright than out of doors in bright sunlight. If we could imagine a pair of scales that would weigh anything from a ton of hay to a marble with equally high precision, and would swing perceptibly to the weight of a fly's leg, we should get an idea of the range over which the eye operates.

The brightness of objects seen by the eye depends upon its sensitiveness. We therefore speak of lighting in terms of comparative brightness or conditions of light. The actual brightness of an object is relative to the brightness it produces. An illuminated head light makes a feeble flicker at midday compared with its brilliancy at midnight.

In order that the eye may adjust its sensitiveness, there elapses a certain degree of time after the change in the brightness level of the objects around, so that the eye has to take a certain time to adapt itself. The iris diaphragm in it shuts and opens almost instantaneously to make a protection while the retina is adjusting its sensitiveness. In adapting itself to a small change, it acts quickly, but when going from bright sunlight to darkness it requires about half an hour to adapt itself almost completely; total sensitiveness, however, is not reached until the end of an hour or so more. Where the contrast is less severe, as in passing from a room brightly lighted by artificial illumination to a dark room, the time of adaptation is considerably less—about five or ten minutes. The sensitiveness of the eye when coming from darkness into sunlight decreases for about an hour. It is found experimentally that the retina takes longer to grow in sensitiveness than it does to lose sensitiveness, so that if a light varies rapidly from bright to dark the eye loses sensitiveness as the light becomes brighter, and does not recover so much as the light becomes darker, so that you get a diminishing sensitiveness when there are alternate bright and dark periods, as when passing along a street at night that is lighted by street lamps.

In viewing or focusing interiors, the best results will be obtained if the eye is stepped down from the high lights through the halftones to the dense shadows, giving it an opportunity to accommodate itself to the steep drop in intensity between the extremes. It will perform its work quicker and with less fatigue than if the change is made direct from the highest to the lowest—the detail will appear more quickly, and the eye will be sufficiently accommodated to work at maximum efficiency.

Lighting contrasts vary considerably in living rooms, work rooms, and offices; but the sensitiveness of the eye to contrast has a wide working latitude, and, if exacting work is not being done, the general brightness may

vary from one to a hundred degrees without discomfort. Where the work demands close attention, the best possible adjustment of light should be made—one that is equal to good interior daylight lighting must be maintained or created by artificial illumination.

The retina resembles the photographic material in another respect, in that it can only render a certain limited range of contrasts; and if the contrast is too great for the eye to be able to bear it, discomfort is produced. In the same way, a glare spot, which is an area of excessive brightness, makes the eye very insensitive to other objects, which is very important in dark room lighting. On entering a dark room we "get our eyes" much more quickly when we try to pick out objects than if we merely close the eyes—a common practice. If instead of stepping immediately from a bright illumination into a darkened room, closet, stairway, motion-picture houses, etc., a pause of only a few seconds is made, the eye will adjust itself sufficiently so that we can proceed without any risk of bumping into objects.

Contrasts are almost entirely due to two causes: differences in reflecting power and depth of shadow. Shadows also tend to depress the sensitiveness of the eye. Excessive contrasts should be avoided for the reason that the eye has not been sufficiently developed to accommodate itself to them. The contrasts out of doors seldom exceed twenty to one in ratio of brightness.

Where contrasts must exist, as they do in dark rooms, every endeavor should be made to reduce the ratio of contrast to the lowest figure. This can be done by cutting down the necessary bright light to the least power that is consistent with efficiency, and by having an indirect safe-light giving all the light possible consistent with safety.

Contrasts are created by bright lights, and bright lights are brightest when we look directly at them. A bright light deflected to the dark room sink, or bench, would still be as bright as it was before, but it would not appear so, and the eye would not be subject to the constant strain of adapting itself to an alternating brightness and darkness, not to mention the loss of efficiency. All lights should be kept out of the line of vision. Clear glass electric light bulbs should never be used in the dark room. They create very strong glare spots, and should be replaced by frosted bulbs, if they cannot be replaced by an indirect method of lighting. Quick changes in brightness should be avoided as far as possible. While they may merely produce discomfort, they can also produce temporary, and even permanent, injury to the eye. Glossy finishes to woodwork, walls, etc., are another source of glare, and should be eliminated. As contrasts increase in intensity, the eye instinctively demands a higher level of general illumination, which means that the eye seeks a compromise between the extremes of light and dark. The dark room should be neither unduly dark nor should it have any bright spots, safety and efficiency considered.

A Bromide Cleaner

Every year thousands of bromide prints are thrown away because they are over-printed or over-developed and look dull and heavy, while as many are sent out in the honest belief that they are as good as the negative will yield. Many of these in the first category could have been saved, and those in the second greatly improved by the use of the iodine-hypo reducer, which is not so well known as it deserves to be. One of its great advantages is that it is quite uniform in its action, that is to say that it will take a shade off the entire surface of the print without eating away detail in the high-lights and without staining or giving a granular texture. It is nothing more than a very dilute aqueous solution of iodine. If a drachm of iodine is dissolved in a couple of ounces of water, using sufficient iodide of potassium to effect solution, a dark brown tincture is obtained. To clear the prints, we put enough water in a dish to cover them, and add to it a few drops of the iodine solution, a very little will give a sherry color, and this is a suitable strength. The prints are immersed, a few at a time, until the paper turns a deep blue and the high-lights of the image show a pale blue. The print is then rinsed and transferred to an ordinary fixing bath, say, hypo three ounces to the pint. The blue is instantly discharged and the print gains in contrast and clearness. Washing for the same period as after fixing completes the process. With bromide paper at its present price it is well worth trying this simple method, especially for enlargements.—*British Journal of Photography.*

Diagram and Announcement Slides

Every lecturer from time to time desires the help of a map, drawing, diagram, or an announcement on the lantern screen. If he be an industrious photographer, with no call upon him for economy of time, trouble, and material, he will make a negative of the original, and from that a positive transparency. But there are others who are not unwilling to simplify procedure, and economize material. To some of these latter it may not have occurred that in many cases —black and white line diagrams, for example—a negative may serve just as well as a positive. This means cutting down both work and cost to one-half.

By way of example, suppose the original to be a black line on white paper drawing of some simple piece of apparatus. Should the lecturer mislay the ordinary lantern slides, he will step to the blackboard and proceed to draw the diagram in white lines on a black background. This in photographic parlance would be a negative of the original, that is, a reversed version of the usual black line on white ground. This is probably the simplest method of making a diagram slide, i. e., a blackboard, or white line on black ground, version of an original in black lines on white ground, obtained in one operation.

As we are proposing to make a negative which is to be used as an ordinary lantern slide, it will be a saving of time, trouble, and risk of bad glass cutting if we at the outset use a plate of the usual or 3¼x4¼, British lantern-slide size; in other words, an ordinary so-called lantern plate. It is true that this is much slower than even an ordinary plate, but the increase of exposure thus entailed is of little or no account when magnesium ribbon is used as the light source, and such a slow plate presents certain advantages.

To bring matters into the range of practical politics we have quite recently made some experiments. The results may be found helpful to others. The original was a black line on white paper drawing, measuring twelve to thirteen inches long. This on the slide was brought down to two and one-half inches, that is, a ratio of, say, five to one. A four-inch focus R. R. lens was used. This was just over twenty-four inches from the original, and about four and three-quarters from the plate. Various stops and exposures were tried. The best result was obtained with f-11 and four inches of magnesium ribbon (total), i. e. two inches burnt on each side at two feet from the original. The plates used were Imperial Special Lantern. These were several years old and defective or foggy along the edges, due no doubt to storage in unsuitable environment. We soon saw that evenness of illumination of the original was a matter of first importance. It is, therefore, better to cut up the total allowance of magnesium ribbon into four equal parts, and burn one such piece opposite each of the four corners of the original, and also keep it moving about during the burning.

Previous experiments had led us to employ the following developer for getting strong-contrast results on process plates:

A: Water ..... 2 ounces
Hydroquinone .....10 grains
Soda sulphite .....60 grains
(or Metabisulphite) ..10 grains
Potassium bromide ..... 8 grains
B: Water ..... 2 ounces
Caustic soda .....20 grains

For a working developer use one-half ounce of A and one-half ounce of B for a lantern plate, at sixty-five to seventy degrees Fahrenheit. The image with this plate and good exposure appears in about three-quarters of a minute. Development should be carried on as long, within reason, as the lines show little or no veiling. A little veiling with good density is better than a clear line and feeble density. As a rough guide for development, one may take a time factor of four to five; if the image shows in half a minute one may go on developing for a total time of two to two and a half minutes if the lines are not seriously veiled

To remove the veiling, use a little freshly mixed hypo and ferricyanide reducer after fixing the plate. Dissolve these ingredients in the order here given. If warm water be used to start with, it will be found that the quinol crystals dissolve in a few minutes; but if ordinary tap-cold water be used, the dissolving may occupy an hour or more. Take a crystal of potassium ferricyanide about the size of a garden pea. Put it in a one-ounce graduate, add one ounce of a ten per cent hypo solution. Crush up the crystal with a glass rod. Stir well for a

minute or so, then filter through a small plug of cotton wool in the throat of a funnel. This filtering is advisable, as otherwise one may get a small undissolved particle of ferricyanide on to the plate, where it will give either a clear spot or line, and probably spoil the slide.

Magnesium light is preferable to daylight, at any rate in the winter months, when the light is poor in actinic quality and often dull.

For focusing the original, one may have a candle close to the original, or, better still, a couple of candles, i. e. one at each side or end. Get the best general sharpness you can with f-8, then change the stop to f-11, and hope for the best. Use a focusing glass, and note that with the best focus the lines look not only their sharpest at the edge but also their blackest.

With regard to the all-important question of exposure, the above data, taken in conjunction with the lantern plate speed table given in *Burroughs Wellcome's Exposure Record and Diary*, should enable the reader to make a fair estimate of the required exposure for other plates, stops, etc. It so happens that the plate used has the lowest number, that is, the highest speed, in this list. Let us suppose the reader wants to use a plate with the number 10 in this list, stop f-16, at one foot distance.

Now one foot compared with two feet means one-fourth the first exposure. And f-16 compared with f-11 means twice the first exposure. And speed number 10 means ten-thirds times the first exposure. So if we multiply these factors together, and the length of ribbon first used, we get $^1/_4 \times {}^2/_1 \times {}^{10}/_3 \times {}^4/_1 = {}^{20}/_3$, or, say, seven inches of magnesium will be required.

The beginner may be reminded that the slide, when dry, will appear to the eye a little more opaque, denser, or darker than when wet, so that if he has been able to keep his black lines clear from veiling, his contrasts will be better when the slide is dry than when it is wet.—*Amateur Photography.*

The Washing of Plates

Mr. Vincent Elsden has sent a very valuable communication to the "Photographic Journal" for February, dealing with the washing of plates. Giving, first, a very simple mathematical formula, which, theoretically, should show the amount of hypo remaining in the plate at the end of each of a series of soakings, he tests the formula by practical experiments. The result is that not only is the formula proved to be correct, if certain essential conditions are fulfilled, but it is also made clear that the operation of washing out hypo can be accomplished in a very brief time, and with the expenditure of a very small amount of water, four ounces of water being sufficient to remove the hypo from a 3½x2½ plate in eight minutes.

The formula is based on the assumption that the hypo contained in the film becomes equally distributed throughout film and washing water. Thus, for example, if the film on removal from the fixing-bath contains one part by weight of hypo in five of water and the plate is immersed in ninety-five parts of water, then one part of hypo becomes in a short time equally distributed throughout one hundred parts of water. If then the plate is lifted out, drained, and transferred to clean water, it will take over only one-hundredth of the amount of hypo it originally contained, and, at a repetition of the process, it will carry only one-hundredth of one-hundredth (1-10,000th) of the original quantity, so that at each change the reduction in the amount of hypo contained in the film is very great. Considering the matter from this point of view, it will be obvious that the larger the quantity of water used for soaking, the smaller is the percentage of hypo remaining in the film at each change; also, that a certain time of soaking must be required to allow the hypo to diffuse to its maximum extent. It should also be obvious that it is useless to exceed this particular time, for when the concentration of hypo in the water outside the film is equal to that within the film no further change can take place. Continued soaking then simply means the continued soaking of the plate in a dilute solution of hypo, a process which is of no use whatever. Mr. Elsden finds that when using one ounce of water for washing a 3½ x2½ plate, five minutes is both the minimum and maximum time necessary to bring about the required conditions if the dish is kept rocking, and, this being a very small proportion of water, we may conclude that in all ordinary circumstances it is useless to prolong soaking over five minutes. Practically the condition of equilibrium is nearly reached

in two minutes, so that nothing is really gained by prolonging the time to five minutes. The latter time is sufficient for two soakings in separate waters.

His experiments lead to the final conclusion that four soakings of two minutes each are ample to remove the hypo from the plate, a conclusion which is fully confirmed by some experiments we made a long time ago, and referred to quite recently in an article on testing for and eliminating hypo. In our experiments we used distilled water and no rocking, but after four or five short soakings could find no trace of hypo left in the plate. The rocking employed by Mr. Elsden is no doubt advisable, and it suggests a new use for the old-fashioned dish-rocker, devised for development but not altogether satisfactory for that purpose.

A point that will doubtless strike our readers is the great saving of time and of water possible in the washing process if eight minutes is really sufficient for the elimination of the hypo. There is, we think, no doubt that it is quite sufficient, but it must be borne in mind that the process must be carried out properly and systematically. Eight minutes' constant personal attention will be required, while care must be taken that each soaking is given in a clean dish which is itself free from hypo. The most automatic of all the automatic washers in use requires some personal attention. We use one that is very fairly efficient, as it will clean plates from hypo in about twenty minutes if not overcharged. At the beginning of operations several minutes have to be devoted to starting it, for it does not always work properly at first. When started it will run all day, but time has to be specially devoted to each batch of plates removed from it to clear off a scum of dirt which seems always to be produced. Like other washers of the type, it contains parts which cannot be got at for cleaning, and also metal liable to rust or corrode, and consequently there is always a reserve supply of dirt which finds its way on to the gelatine of the plates, and cannot be removed by a simple rinse under the tap. Undoubtedly the cleanest method of washing is a quick one of the type experimented with Mr. Elsden, for the water used can readily be filtered through a tap filter, and, the time being brief, there is not much chance of dust accumulating from the air.

A point that will no doubt strike careful workers is this: If eight minutes or so is really sufficient for washing, though an hour's washing is generally given, then the majority of negatives must be much overwashed. We have no doubt that they are, and that possibly this over-washing is productive of bad results, for gelatine does not take kindly to over much soaking. It also follows that stains commonly attributed to lack of sufficient washing can very seldom be really due to a deficiency in that respect. They must in most cases be due to underfixing, which we have for a long time considered to be a most prolific source of trouble. While water readily removes hypo, it has little or no solvent effect on the combination of hypo and silver which is formed in the early stages of fixation, the absence of which can only be ensured by prolonged fixation in fresh solution or by the use of two fixing baths.

It is obvious that a plate is more readily freed from hypo than a print, not only because of the absence of paper, but because the plates must be kept apart in the washing water. Prints are often imperfectly washed simply because they are liable to stick together in the water. Cut films may be spoilt in the same way, but this can hardly happen with plates, excepting as the result of gross carelessness. There is no doubt that many of the methods of plate washing adopted are very inefficient, but this defect is probably counteracted by the excessive time for which they are, as a rule, allowed to set.

It is perhaps worth while noting the great economy as regards water that can be effected by regulating the washing of plates in accordance with Mr. Elsden's result. Photographers are apt to be very reckless in their expenditure of water, and few will think anything of leaving a tap running at the rate of ten ounces a minute for an hour or so for the purpose of washing one solitary small plate. The result of such a proceeding is, however, the use of one gallon of water for every ounce that Mr. Elsden shows to be really necessary, or one hundred and sixty times as much as is required. Properly used, this quantity of water would be enough for one hundred and sixty plates, but very seldom will it be used for more than one or two dozen.—*British Journal of Photography.*

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

What Is a Good Negative

The average amateur, particularly the one who does not have the advantage of being able to compare notes with others, is not quite sure just what a perfect negative should look like. One way of getting a pretty good idea concerning the matter is to take a few negatives that one thinks are about right and print them on both soft and contrasty grades of paper. The chances are that he will find one or two of them that give good prints, although slightly dissimilar ones, on both kinds of paper. Those one or two are good negatives, particularly for developing paper. They will also be found entirely satisfactory for enlarging, for lantern slide work, for carbon printing, even for the plebeian blue print process. But, one must take care, in making the test, that the prints are rightly timed for the two grades of paper, so that the results are those secured under correct or normal conditions. This right timing is determined by the action of the print in the developer. A rightly timed print on developing paper will come up to the right quality in the developer and then seem to stop. If the print has to be hurried out of the developer into the fixing bath, or if it has to be allowed to soak in the developer in order to get all the development possible, the exposure was not the correct one for the paper. And in speaking of a good negative, I have in mind the normal, clean, properly timed and properly developed negative such as one would make for a good view or landscape. Where certain effects are wanted, variation from this standard will often help in securing the desired results. Slight under-timing will increase contrast and over-timing flatten, while under or over-developing will also have their effect. The results of such control may not come under the classification of a good negative, but it will give a nearer approach to what is wanted in the print. This brings us to the matter of correct exposure, and who can say what the correct exposure is, let us say, for a simple landscape. The sky may require, with the stop used, about one-hundredths of a second, some well lighted portions in the distance may call for less than half that exposure; while, if the subject has sufficient contrast to give a good brilliant picture, there will be some shadow in the foreground that will require at least one-tenth of a second in which to secure the detail that the eye can easily perceive. Any exposure is therefore somewhat of a compromise. The sky gets a little too much and the shadow not quite enough when one decides upon, let us say, the twenty-fifth of a second. And the results are much better than we really have a right to expect when we think of the burden imposed upon the plate or film. That fine quality of latitude that the emulsion makers manage to incorporate in the coating, comes to our assistance and all that we are asked to do is to give a little care in the matter of imposing as light a burden as possible and developing with some regards to the requirements.

That Elusive Dusting Brush

A dusting brush should always be at hand when filling plates into holders, but unfortunately, it has a very bad habit of getting itself misplaced. If one will take and tie a piece of string to the handle and then tie the loose end to a nail so that the brush is suspended above the bench on which the holders are loaded, our dust remover will always be at hand and it will not be collecting dirt from the shelf or wherever it may be laid down. If a part of this retaining string is made up of a few rubber bands strung together, the brush will be held high enough to be out of way when not wanted and yet easily brought down to the surface of the bench for use.

Making Good Enlargements

An Ohio correspondent has equipped himself with a good enlarging apparatus but he

finds himself getting but very few good enlargements in proportion to the paper he is using up in the work. In fact, he claims that, disregarding his own time, his satisfactory enlargements have cost him quite a little more than they would had he let the work out to a regular finisher. He knows the equipment is all right, because some of his enlargements are all that could be desired. It is evident that our correspondent is going at the work in a rather hit-or-miss fashion. Why not take a dozen sheets of paper and deliberately spoil them in learning how to avoid spoiling more. Pick out ten or twenty negatives of average quality and arrange them as you think they should print, that is, into three classes requiring a short, medium and long exposure, respectively. Then find out their actual exposure time for a contact print on the developing paper generally used. This will not only give you the relative exposure time for each of these negatives, but it will enable you to check up the correctness of your judgment as to their requirements as to time. Then take one of these negatives and project it on the enlarging easel for a four-time enlargement, pin up a strip of the bromide paper and make a trial exposure, repeating the process until a properly timed strip is secured. You will find, let us assume, that the negative marked as requiring eight seconds for a contact print requires twelve seconds for a four-time enlargement. It is then safe to assume that the next negative, marked perhaps twelve seconds, will require eighteen seconds for a four-time enlargement, the exposure for such an enlargement being, in both cases, an increase of fifty per cent. Try a few of the other negatives to make sure that you are right in the matter. You may find that the extremely soft negatives should have a little less exposure than the rule calls for, and a particularly hard one a little more. Then take one of the other negatives and try to estimate the exposure for a three-time enlargement. When that is determined by exposing a few strips of bromide paper, as before, compare the time required with the time marked on the negative as the exposure for a contact print, and then proceed with one of the other negatives having a different contact time, giving it a proportionately longer or shorter exposure. Use a good developing formula, the one with the paper is such; make it up carefully, and then do not alter or overwork it and your results will be satisfactory. As you proof up your negatives in the future, use same kind of developing paper with a light that is always the same as to strength and distance, and mark the exposure time on the edge of the negative. Timing an enlargement is then only a matter of a very simple calculation. In the supposed case above, the four-time enlargement was found to require fifty per cent longer time than the contact print. The three-times enlargement would be found to require another factor, and so on through the scale. If another grade of paper is sometimes used, experiment with a few strips until you find out just how much less or how much more exposure is required. Then, making allowance therefor is simply a matter of increasing or decreasing the calculated exposure by a definite per cent. All quite simple if one will go about the matter in a systematic matter.

Picture Transferer

"Henley's Twentieth Century Recipe Book" gives two formulas for this, the method of transferring recent magazine and newspaper prints to unglazed paper. The first is made up by dissolving one-half ounce of soft soap and two drams of pearlash in sixteen fluid ounces of distilled water. Lay the print on a flat surface and moisten with the solution. Lay the unglazed paper over this with a thickish sheet of paper on top, and then go all over the surface, evenly, with a hard blunt instrument like the bowl of a spoon. The other formula reads:

Hard soap	1 dram
Glycerine	30 grains
Alcohol	4 drams
Water	1 ounce

Dampen the picture with a sponge and then proceed as with the first formula.

Unmounting Dry-Mounted Prints

Anyone who has tried to remove a dry-mounted print from the mount knows how difficult it is if resort is not made to heat. Hold the back of the mount over the burner of a gas stove, about fourteen or fifteen inches above, and the print will gradually curl away and come off quite neatly. To try and get these prints off the mount by soaking is useless, as it leads to buckling and other troubles. Only a little care is required to do the job neatly if recourse is had to heat as suggested.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

Exposure and Static

While the amount of light that reaches the film in the camera probably has no relation to the generating of static electricity, the effects of which are all too well known, yet for practical purposes the exposure has a very important bearing upon the effects of static. Who has not noticed that static seemed to occur more frequently in the dark parts of an irissed image on the film and in the dark parts of scenes which were irissed or dissolved out? Likewise, in case the static is slight it may escape detection in a fully exposed film, although the same static markings would ruin a "thin" negative. We have compared similar scenes with different exposures on a piece of negative having rather uniform perforator-static markings throughout its length. The perforator-static showed very distinctly in the more briefly exposed scenes, but almost escaped detection in the very fully exposed ones. The theory seems to be that the heavier silver deposit in the image of a fully exposed negative film obscures the less dense static markings in the high lights, while the fuller printing required for a fully exposed scene will print through a not too strong static marking in the shadows.

Depth of Focus

Have you noticed that the depth of field does not extend as far in front of the point focused upon as it does back of this point? i. e., if the most accurate focus were obtained on an object at fifteen feet, and the lens stopped down so as to give sufficiently sharp definition through a depth of field of just fifteen feet, the range of distances sufficiently sharply defined would not extend from seven and one-half feet to twenty-two and one-half feet from the camera, as might be supposed. Instead, the practically sharp depth of field would lie more nearly between nine and twenty-four feet from the camera. Roughly speaking, depth of field extends about two-fifths in front of, and about three-fifths to the rear of the point of sharpest focus, although this relation changes somewhat as distance of sharpest focus and lens aperture are changed.

Theoretically, of course, but one distance or plane can be focused absolutely sharp at one time. The reason that there is practically more depth of field in objects back of the sharpest focus than in the nearer objects is about the same reason that there is more depth of field in long shots than in close-ups. The more distant the object, the more nearly parallel the rays from it; and hence, the more depth of focus. From the practical standpoint, however, the point to be borne in mind when "splitting the focus" is that the lens is bound to cut practically sharp a little farther back than in front of the point of exact focus.

Photography In The Theatre

With color sensitive plates and the rapid lenses now so frequently used on hand cameras, it is perfectly possible to obtain photographs in the theatre, when the scene is one in which the stage illumination is full on. There are always moments when the action is at a minimum, and the photographer who knows when one of these is coming and can get ready will find that an exposure of two or three seconds is practicable. Such a time will be long enough with f-3.5 or f-4 to give a very fairly exposed plate in many cases: the more so, as the lighting employed generally does away with anything in the nature of a deep shadow. Anyone in the front row of the dress circle has a support for the camera already provided, and an interesting experiment might be made, if the apparatus is available. The best work of this kind which we have seen has been done by specially sensitizing the plates by bathing them in suitable dye solutions; but a fast panchromatic, without a screen of course, would, we expect, do nearly if not quite as well.—*Photography.*

OUR BOOK SHELVES

"20th Century Receipt Book"

"Henley's Twentieth Century Book of Recipes, Formulas and Processes" is the full title and even that does not do the book justice. The eight hundred large octavo (6x9½) pages contain over ten thousand selected scientific, chemical, technological and practical recipes and processes including hundreds of so-called trade secrets. And the best part of it is that the formulas and processes given are practical, workable and up-to-date. Judging to that part devoted to photography and assuming that the rest of the volume is as ably edited and as modern, the concise yet complete information crowded between the two covers of this book is truly remarkable. In our search for the answers to some of the queries put to us by our readers, queries dealing with many other than strictly photographic subjects, we have occasion to consult not a few books of this kind and we can frankly say that this is about the best reference book that we have yet found. In fact, we do not see how it could be made better. Meeting, as it does, the requirements of every-day life, it still supplies the needs of the artisan or expert in special lines of work. Published by the Norman W. Henley Publishing Company, 2 West Forty-fifth Street, New York. Price postpaid, cloth binding, three dollars; half morocco, four dollars.

"Webster's New International Dictionary"

We have just installed the new edition of this standard authority, replacing the older edition of the same dictionary that has served us so well since it was made a part of our office equipment to replace still another one lost in the fire of 1906. It contains some two thousand seven hundred pages, more than twice that number of illustrations, and over four hundred thousand words are defined. This dictionary, we believe, is used in practically all of the newspaper offices in the country, as well as in the Government printing office at Washington, and those in search of the best in dictionary making can hardly do better than get in touch with G. & C. Merriam Company, Springfield, Massachusetts, and investigate the merits of this new creation.

"The Study and Enjoyment of Pictures"

An idea of the value of this book, the work of Gertrude Richardson Brigham, can perhaps best be conveyed by explaining that its twenty-two chapters are divided into four parts, namely: Principles of Art Criticism; Schools of Painting; Pictures to See in America; and, Pictures to See in Europe. The first part of the book will be found very interesting to the photographer, the chapter on Composition particularly so. Miss Brigham handles her subjects with an enthusiasm that inspires and the chapters reviewing the Schools of Painting and noting important paintings to be seen in the public collections will be found informative to a degree by those who are unacquainted with the history of art and the great galleries of the world. Published by Sully & Kleinteich, 373 Fourth Avenue, New York. Price one dollar and twenty-five cents net.

An Interesting Bulletin

Bulletin No. 78, issued by the Cooper Hewitt Electric Company, Eighth and Grand Streets, Hoboken, New Jersey, is strictly photographic and one that will interest any and all of our readers who may be considering the use of electric light for any photographic purpose. Photographs and diagrams show the arrangement of the light, background screen and camera for portraiture, motion picture work, printing, enlarging, copying, lantern slide making and the like, and details and specifications, together with prices are given for the various forms of the well known Cooper Hewitt Light. Copies of this bulletin can be obtained upon request by addressing the firm as above.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Kansas City Camera Club

This enterprising club, with nearly a hundred members, has gotten out a neat little booklet giving the program of club events up to and including April, 1918, showing that the workers at the mouth of the Kaw are advanced and progressive. Stereoscopic Photography, Soft Focus Work, Speed Photography, Home Portraiture, and other special subjects will be covered, the members themselves taking up the work of furnishing the several talks, each so doing taking the subject in which he is most interested. This makes the program an interesting and attractive one and the plan is such that other clubs would find it to their advantage to adopt the idea. Those wishing to get in touch with the club can do so by addressing the Secretary, Dr. Maclay Lyon, Suite 501, Bryant Building, Kansas City, Missouri.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

ALBUM DIRECTOR.

Alabama—Richard Hines, Jr., Barton Academy Bldg., Mobile.

Alaska—P. S. Hunt, Anchorage.

California—W. E. Thomson, 3211 School St., Fruitvale.

Colorado—O. E. Aultman, Plested Bldg., Trinidad.

Connecticut—George E. Moulthrope, Bristol.

Florida—Capt. E. S. Coutant, Lock Box 73, Stuart.

Georgia—L. O. Surles, P. O. Box 434, Cuthbert.

Idaho—Eugene Clifford, 902 9th Avenue, Lewiston.

Illinois—George A. Price, 320 N. Locust St., Centralia.

Indiana—H. E. Bishop, 551 East 40th St., Indianapolis.

Iowa—C. W. Parker, Mapleton.

Kansas—H. E. High, Box 232, Ellsworth.

Maryland—E. G. Hooper, 218 East 20th St., Baltimore.

Massachusetts—John Mardon, 161 Sumner St., Boston.

Michigan—W. E. Ziegenfuss, M.D., 171 Richton St., Detroit.

Minnesota—Leonard A. Williams, St. Cloud.

Mississippi—George W. Askew, Jr., 211 34th Ave., Meridian.

Missouri—Wharton Schooler, R. F. D. No. 2, Eolia.

Nebraska—Miss Lou P. Tillotson, 822 South 38th St., Omaha.

New Hampshire—Mrs. A. Leonora Kellogg, Box 224, Londonderry.

New Jersey—Burton H. Allbee, 103 Union St., Hackensack.

New York—Charles F. Rice, P. O. Box 517, Mamaroneck.

North Dakota—Jas. A. Van Kleeck, 619 Second Ave., North, Fargo.

Ohio—J. H. Winchell, R. F. D. No. 2, Painesville.

Pennsylvania—L. A. Sneary, 2822 Espy Ave., Pittsburg, Pa.

South Dakota — C. B. Bolles, L. B. 351, Aberdeen.

Texas—J. B. Oheim, P. O. Drawer M, Henrietta.

Utah—John C. Swenson, A. B., Provo.

West Virginia—William E. Monroe, Box 298, Point Pleasant.

NEW MEMBERS.

4372—Arthur H. Farrow, 51 Richelieu Terrace, Newark, N. J.

From Vest Pocket up, various papers, of good landscapes, genre, nature studies, English views, etc.; for anything interesting, especially lantern slides. Prints or lantern slides. Class 1.

4373—Harry M. Chang, 375 Fifth St., Oakland, Cal.
Vest Pocket to 5x7, developing papers, of beach scenes, landscapes, statue figures and miscellaneous subjects; for speed and any interesting subjects. Desire to exchange only single weight paper prints and good work. Class 1.

4374—F. K. Caswell, R. F. D. No. 2, Box 40, San Gabriel, Cal.
Vest Pocket, 2¼x3¼, 3¼x5½, and enlargements to 8x10, developing papers, can furnish oil colored, of locomotives, California Missions, Seattle Fair A. Y. P. 1909, Southern California scenes, cats, Seattle and vicinity, forests and parks, and shipping; for locomotives and railroad scenes, Yosemite and other mountain scenery, figure studies, nude or draped, in fact anything of general interest. Good work with privilege of rejection reserved and extended. Class 1.

4375—William Hu, 35A Weihaiwei Road, Shanghai, China.
Class 2.

4376—Carl Grohman, Box 131, Thane, Alaska.
Class 2.

4377—E. W. Fuller, 1710 Parker St., Berkeley, Cal.
Up to 4x5, developing papers, of landscapes, and flower studies; for landscapes, marines, flower and nature studies, no portraits. Class 1.

4378—Norman Hill, R. F. D. No. 3, Campbellsburg, Ky.
Class 2.

4379—Frank B. Howe, 212 Mason Opera House Bldg., Los Angeles, Cal.
Class 2.

4380—C. C. Chapman, Box 8, Dundas, Minn.
Class 2.

4381—Mrs. G. E. Bolkcorn, R. F. D. No. 2, Spangle, Wash.
5x7, developing paper, of landscapes, portraits and general subjects; for the same. Class 1.

4382—Chas. J. Young, Bennett, Iowa.
Class 2.

4483—John W. O'Neill, Nevada City, Cal.
3¼x5½ and enlargements, various papers, of Yosemite and Yellowstone Park views, P. P. I. E. views and general scenery; for water falls, mountain scenery and anything good. Class 1.

RENEWALS.

2535—R. D. Count, 1942 Santee St., Los Angeles, Cal.
5x7 only, various papers, of scenery exclusively—mountains, orange groves, missions, sea coast, etc.; for scenery in general only. Class 1.

3414—F. D. Campbell, M.D., High St., Coal Grove, Ohio.
Class 2.

3829—Archie Gilfillan, 1441 Page St., San Francisco, Cal.
3¼x5½ post cards of electric and steam locomotives; post cards and prints of old California missions, bathing girls, ocean, beach and water views, steam and sailing ships, mountain scenery; for the same class of subjects, also all kinds of old wooden cars, passenger, freight, electric, cable and horse, ship and train wrecks, also scenes along the Colorado River in the Grand Canyon. Class 1.

3908—S. J. Anderson, Box 32, Bellaire, Ohio.
Any size up to 5x7, various papers, of figure studies, posed in the nude, semi-nude, and draped, San Francisco fair views, Niagara Falls, lake views, Cuba views, bathing girls, southern views, and many others of interest; as I have first class subjects, I want the same in return, all pictures must be clear and sharp. Class 1.

3930—Hugh L. Mangum, Drawer A, East Radford, Va.
3¼x5½ views of mountain, river and railroad; for views of interest. Also a few nudes and semi-nudes from original negatives, for pictures of the same class. Do not want anything but good work, and no post cards. Class 1.

3958—Orrin Dudley, San Anselmo, Cal.
Class 2.

4233—Harold Sherer, R. F. D. No. 2, Osnaburg, Ohio.
Post cards, developing papers, of views, speed pictures, and other miscellaneous subjects; for any interesting subjects. Class 1.

CHANGES OF ADDRESS.

3843—Martin R. Robertson, Platteville, Wis.
(Was Madison, Wis.)

4204—Claude Vedder, Lifton Station, Paris, Idaho.
(Was Akron, Ohio.)

Illinois College of Photography

Mrs. Geo. E. Starr of Grass Lake, Michigan, is following a special course in lighting and printing, at the College. Mrs. Starr has charge of the photographic department at a large stock seed farm, of which her husband is superintendent.

Geo. C. Blakslee of 1898 has had honor thrust upon him, having been appointed staff photographer for the University of Chicago, at Yerkes Observatory, Williams Bay, Wisconsin. George is one of the large number of our students who has made good.

To show that there are other months than June in which a couple may be married, Cupid busied himself the past few weeks among some former students. Edward Wilkerson and Miss Gertrude Lauffer, both of '17; and Carl Mayer, also of '17, and Miss Ina Mascher of this city, were the principals. The young men secured work in the same photo-engraving plant in Omaha. It is the wish of the College that "they may live happily ever after".

The annual graduating exercises of the I. C. P. were held April twentieth in Engraving Hall. The banquet for graduates and faculty was given on the eighteenth. The members of the 1917 class are: R. C. Bagby, Springfield, Missouri; F. E. Wesner, Lakefield, Minnesota; Herbert Turner, New South Wales; Russel Penglase, Eveleth, Minnesota; Charles B. Freel, Markham, Ontario; S. E. Byck, New York City; C. Beveland, Stevens Point, Wisconsin; H. Miyamoto, Japan; T. Nagata, Japan; E. W. La Viollette, Stambaugh, Michigan; H. N. Tandy, Gardner, Massachusetts; Mrs. T. F. Cass, Manila, Philippine Islands; Walter Gustafson, Erie, Pennsylvania, and Russell K. Nakata, Honolulu, Territory of Hawaii.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

"Premo" Richardson has fully recovered from his attack of la grippe, contracted early in June, after being confined to his room at the Manx Hotel for ten days.

H. James of Vancouver, B. C., has associated himself with E. N. Sewell at 353 Sutter Street, this city. The firm will be known as The Sewell Prints Company.

The Eastman School has once more come and gone, being a bigger success than ever. The instructors furnished many good pointers to the local photographers. Those who were not in attendance missed all the good things and should remember that it comes again next June and make up their minds to be there.

A Visitor From New Orleans

The well known New Orleans painter, Napoleon DeRemont, is spending a much appreciated vacation here on the Pacific Coast. While here he has accepted several theatrical engagements that permit a display of his talent as an illustrator and from press clippings that we have seen we should judge that his efforts are highly appreciated even by the most critical audiences. Mr. DeRemont's future plans are not as yet definitely arranged, but his New Orleans friends will no doubt find him again with them later in the season.

"Anscoing America"

This is the title given the new 1917 amateur camera catalogue gotten out by the Ansco Company, this calling attention to the fact that travelers in ever increasing numbers are using cameras, the idea being carried out in a series of thumbnail sketches of artistic merit used to decorate many of the sixty-four pages. The list of cameras pictured and described comprises fifty-eight different ones, ranging from the vest pocket size to the higher priced models that are equipped with the finest anastigmat lenses. Ansco Speedex Film, film packs, Cyko paper, Ansco and Cyko chemicals, and Hammer dry plates also come in for consideration. New depth of focus tables, as well as tables covering lens speeds and diaphragm markings add to the value of the book, making it one that the amateur should not fail to possess. Copies can be obtained from dealers throughout the country or direct from the Ansco Company, Binghamton, New York, a post card request being all that is required.

Removal Notice

Announcement is made that the Philadelphia office of the Cooper Hewitt Electric Company, manufacturers of mercury vapor lamps, has been moved from 124 South Eighth Street, to the Drexel Building. The ever increasing popularity of the mercury vapor lamp for all classes of photographic work, has made the supply of such lamps an important branch of the business and readers interested therein should write the main office of the Cooper Hewitt Electric Company, Eighth and Grand Streets, Hoboken, New Jersey, for a copy of the new Bulletin No. 78 covering the photographic use of these lights.

Ahkanco Salve

We have had two or three reports from local workers testifying to Ahkanco being a surprisingly efficient remedy for all kinds of photographic poisons and especially for that particularly annoying and trying kind that some experience as the result of the use of metol solutions. One of these workers reported that he had used the salve on some boils and found it a splendid remedy therefor. One of the gentlemen in question called at our office and showed us his hands where what have been large cracks in the skin were healing over beautifully after only a few applications of this salve. The remedy is indeed an excellent one and we would advise all our readers to supply themselves with it to be used upon indication of ill results from photographic or other chemicals

of a poisonous nature. It can be obtained from J. H. Andrews, 107 Fulton Street, New York, whose small advertisement appears in our advertising section.

Some Excelient Rubber Stamps

Those of our readers who have use for rubber stamps, and we can hardly imagine one who has not need of at least a few, should try the excellent product turned out by the Arizona Stamp and Seal Works, of Phoenix, Arizona, whose small announcement appears in our advertising pages. While this firm is not located in one of the largest trade centers in this country, it does all of the state work, the railroad work, and through its branch house in Douglas, it does practically all of the work for the Mexican government. Three traveling men are kept on the road, and were not the quality of the work of the best, the firm would not enjoy the popularity which it does. Look up the advertisement, and if the special offer for the month does not appeal to you, at least send for a catalogue as you will surely find something therein in the way of rubber stamps that will be a convenience to you.

Official Announcement

After careful consideration looking to the best interests of the association, the annual convention of the Photographers' Association of America, scheduled for Milwaukee, September third to eighth, has been abandoned by the executive board. The American Congress of Photography will meet on Friday and Saturday, August third and fourth, at Cedar Point, immediately following the Ohio-Michigan-Indiana convention, and will outline the work to be taken up by the Photographers' Association of America for the coming year.

RYLAND W. PHILLIPS,
President Photographers Association of America.

"The Rexo Booklet"

There has just reached us a copy of the neat little 1917 edition of the "Rexo Booklet" showing in detail the several special features of the Rexo camera, the fourteen models of which range in price from two to twenty-five dollars, with two additional Rexo specials listed at forty and seventy-six dollars respectively. This little booklet will interest our readers, we feel quite sure, and copies will be gladly mailed to those requesting same from Burke & James, Incorporated, 240 East Ontario Street, Chicago, Illinois.

The Harvey Meter

Recently George L. Harvey, inventor of the exposure indicator bearing his name, showed us one of these devices, explaining that he had spent about ten thousand dollars in perfecting it and checking up possible inaccuracies. Although any "table-type" meter must leave some factors of exposure to the personal judgment, the Harvey meter seems as complete and dependable as a meter of this type can be.

Havers & Fagin Purchased

The Havers & Fagin, Incorporated, concern of 120 Fulton Street, New York, was purchased, stock, fixtures and good will, from the receivers, on June twenty-eighth, by the New York Camera Exchange. The new owner will continue the business for an indefinite period.

Illinois College of Photography

The I. C. P. has just been paid a visit by Roy Quinlan, one of its former students. Mr. Quinlan has been managing a studio in Yazoo, Mississippi, several months, and is now returning to his home in Omaha, Nebraska, with the intention of entering the United States Army.

Upon request of some of the students, Professor C. W. Fisher, principal of the Colleges, and a Spanish War veteran, is organizing a company of young men from the city and College, for military training. They feel that it is a good step in the direction of preparedness.

At a recent election held in this city, in which the anti-saloon question was the issue, Effingham voted to remain dry by two hundred and sixteen majority. This is the third time the city has voted dry, and many think the issue will never be brought up again.

Several of the College boys are members of the Effingham Independents, a basketball organization. Their last two games have been won by a score of thirty-six to fourteen, and fifty-six to twenty-two, which speaks well of their ability.

Those of the students who are members of the College Camera Club are always anxious concerning the prizes awarded each month in the print competitions. The past month the winners were Roy S. Tanaka, Charles B. Freel and Mrs. Harriet Trimble.

Palladium in Place of Platinum

One of the interesting side issues of the great war has been the production by the Platinotype Company of a new paper, Palladiotype, in which the place of platinum is taken by the kindred metal palladium. Hitherto palladium has been scarcer than platinum, the ore containing both generally yielding about ten times as much platinum as palladium; but, owing to the great need of platinum for munitions of war, it has become practical to put a palladium paper on the market which can be sold at a lower price than platinum paper.

The very first question that will arise in the mind of the photographer in connection with this new material will be—How about permanence? Platinum has such a high reputation in this matter than one is apt to think that any departure from it is like a falling away from grace. In the case of palladiotype, one may feel assured. There is no reason whatever to suppose that a print in palladium will not remain as unaltered as one in platinum. The two metals are closely akin. Both belong to a very remarkable group, which includes, besides platinum and palladium, iridium, osmium, rhodium, and ruthenium. They are all amongst the most permanent substances known. Palladium, which is a silvery white metal, for example, can be exposed to sulphuretted hydrogen without tarnishing; while iridium is known for its extraordinary hardness. Only with the highest known temperatures do any of these rare metals melt.

Chemically, palladium behaves very much like platinum; and from the appearance of a palladiotype paper before exposure it is not too much to suppose that the new process is closely akin to the old one. The paper is a bright yellow, and the image comes out to its full depth in a developing bath in which the yellow substance, presumably an iron salt, dissolves away. The process is even simpler than platinotype, since only one solution is required for it, which serves the two-fold purpose of developer and clearing bath. This may be made up by dissolving the prepared salts in water in the proportion of one ounce of the salts to a pint of water; but if the salts are not to be obtained, their place can be taken by one ounce of potassium citrate and fifty grains of citric acid.

For the benefit of those who are unfamiliar with platinotype, we may give a brief summary of the process of printing on palladiotype. The paper is sent out in sealed tubes, each of which contains a little packet of asbestos and calcium chloride, a preparation which absorbs moisture very readily, and so keeps the contents of the tube quite dry.

The bright yellow surface of the paper is placed next the negative in the printing frame, and on exposure to daylight for less time than it would take to make a print on printing out paper, a faint grayish-brown image becomes visible. When there are just signs of change in the high lights, printing is complete, and the print is placed face upwards in the developing and clearing solution. This can be done in weak daylight. Almost immediately the picture comes up to its full strength—there is no possibility of over-development—and the yellow color of the paper begins to wash away. The print can then be turned face downwards, and after the lapse of a minute or two is transferred to a second dish of the same solution, after ten minutes in which it is put into a third. These baths can be used for a number of prints, so long as the last one is water white. As soon as it shows the least coloration, the first bath of all should be discarded, the second used as the first, and so on, a new supply being taken for the last bath of all. After ten minutes in this, the prints are given several changes of water, and can be dried between blotters or pinned up.

Although in the instructions supplied to us we were told of a very slight addition of potassium bichromate to be used with flat negatives in the developing and clearing solution, we found that the paper gave bright prints without it from negatives that were distinctly thin.

The gradation throughout was very good, and the color of the image a fine warm brown. We used samples of both White Japine and Buff Japine Palladiotype; the latter we liked especially, as the color of the image seemed particularly suitable for the cream tint of the paper. When once the correct depth to which to carry the printing had been learned, the whole process was of the most simple, straightforward character, and the results in every way equal to a fine sepia platinum print, except that the color of the image was a little warmer brown.—*Photography.*

XIV No. 9 SEPTEMBER, 1917 Price, 10 Cents

CAMERA CRAFT

SAN FRANCISCO
CALIFORNIA

In ***1909*** it was stated of

Cyko Paper

"Each grade of Cyko has more latitude, plasticity, chromatic rendition and proper scale of gradation than any other paper. Its scope is unlimited"

and yet its scope has been enlarged every year since, so ***that in 1917*** it has taken the place of all former printing processes, because it has the brilliancy of platinum, and delicacy of carbon—and in the Enlarging grades all of the above mentioned qualities with speed almost equal to Bromide paper.

CYKO is the single and universal expression of photography today

Ansco Company

Binghamton, N. Y.

CAMERA CRAFT

A Photographic Monthly

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AN OUTDOOR PORTRAIT
By F. MORRIS STEADMAN
Unit exposure, four seconds
Subject, four actinas
Exposure, one second

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV SEPTEMBER, 1917 No. 9

The Basis of Unit Photography

By F. Morris Steadman

With Illustrations by the Author

EDITOR'S NOTE: There is, we have found, a tendency on the part of some of our readers to assume that Mr. Steadman's enthusiasm in the matter of his Unit System of Photography is inspired more by a desire to further the sale of his book and his Aabameter, rather than to impart definite information. Such is not the case. Our own pages bear testimony to the fact that he has repeatedly given his fellow workers, not only a full explanation of his methods, but definite instruction as to just how the light value factor could be quickly and surely determined without the Aabameter. Mr. Steadman, it is true, offers for sale both a meter and a book, but the cost of such advertising as he does, exceeds the amount of profit derived, and has done so from the start. In the article below, and the one to follow, Mr. Steadman aims only to help the reader by explaining his unit method, a scientific one that he has found advantageous in actual practice extending over a number of years.

For some four hundred years, we have been taught, through the school and the books on physics, that "light weakens by spreading". This theory is given as sustaining the law of inverse squares, incorporated within the books on physics as the basic one to be used in the determination of light intensity. To me, neither this theory or this law seems adequate to deal with the every-day problems that present themselves. I hold: That light intensity is not created by rays that radiate outward from a point; that light does not weaken by spreading; and, that the so-called "law of inverse squares" is in no way a law of light intensity. Furthermore, I hold that this law is neither true nor basic, and that, under ordinary light conditions in nature, it is entirely inapplicable except when the illuminated surface is at least as distant from a sharply defined light source as the diameter of that source.

If I am correct, then every school physics book is wrong; but, if the books are wrong, we need no further explanation as to why there is so much

absolute ignorance concerning the action or behavior of light. This lack of knowledge is shown in many ways; particularly in the practice of photography where the want of any intelligent scientific connection between the camera manipulation and the physics of light is all too apparent. We are, today, in a state of ignorance regarding the principles governing light action, as we were of written language in the time of Christ. This condition, recognized and deplored, is a shame and a disgrace in a country boasting of its low per cent of illiterates. Without entering into any argument as to the merit or otherwise of the theories presented, it is seemingly quite obvious that the schools have not taught the subject in the correct manner. The errors are clean cut and definite, they can be pointed out and they can be proven erroneous.

As the three tenets set forth in my opening paragraph point out what I deem these definite errors, let us examine each of them as carefully as our space will permit. Taking the first, the universally accepted statement that "light weakens by spreading"; I hold, as already mentioned, that intensity is not produced by light that has "spread" or radiated from a point source; and if I be right in this, trying to account for variations of intensity by such "spreading" of the light, is absurd. To take a definite example: Suppose that a lighted candle be placed inside and close to a thin, opaque screen, such screen forming one side of a light-tight box. Outside of this box, facing and a little distance from this screen, a photographic dry plate is placed, it also being protected by a very thin, opaque screen, in contact with its surface. Let us imagine both screens as being pierced with a small hole just large enough to illuminate a single grain of the sensitive silver in the emulsion, these holes passing only a single "ray" of light, giving us these conditions: A single grain of silver in the emulsion is illuminated by a single ray of light from the hole in the opaque side of the light-containing box. Can the intensity of the light falling on that grain of silver be increased by piercing more holes in the screen near the flame, or in the screen against the plate? If the latter, and we thereby uncover more grains of silver, we cause the plate to receive more of the "total" illumination from the single hole in the opaque light screen, but no grain of silver in the emulsion on the plate is effected by other than the ray that strikes it individually. Consequently, so long as only one hole is pierced in the screen near the flame it is impossible to increase the intensity on the plate by increasing the area of the surface illuminated, that is to say, we have increased the illuminated area but not the intricate intensity. This brings us to a truth that is broad and basic enough to be accepted as an axiom, namely, that: A surface is illuminated by the individual illumination of its points. Then the area of an illuminated surface is not a factor in determining the intensity of that surface. When reading, the brightness of the page is not modified by its area, because, just as were the grains of silver in the plate, the nerves of the retina of the eye are independently illuminated and each is an individual transmitter of the sensation of brightness to the brain.

Consider a certain surface at one, and another at two, meters distant from a candle flame. The books on physics tell us that at the latter distance the same area is only one-fourth as bright because it receives only one-fourth of

UNIT EXPOSURE FOR STOP USED, EIGHT SECONDS. SUBJECT BRIGHTNESS, SIXTEEN ACTINOS. 8 ÷ 16 = ½ SECOND EXPOSURE

UNIT EXPOSURE FOR STOP USED, SIXTEEN SECONDS. SUBJECT BRIGHTNESS, THIRTY-TWO ACTINOS. 16 ÷ 32 = ½ SECOND EXPOSURE

the light that shines upon the one at one meter distance. If this "one-fourth" of the light were really a factor in the intensity problem, we need only increase the area enough to receive "one-half" or "all" the light that the other surface receives at one meter to increase the brightness accordingly. But, as I have already shown, the area of the illuminated surface can be altered at will, at any distance from the light source, without altering, in any degree, the intrinsic brightness of that area.

To get a true mental picture of light intensity, let us keep in mind a single point on the surface illuminated and imagine the light converging to each such point from the full area of the light source, be this last a window, flame, opening, lens stop, or what it may. Doing this, we can understand that every such light source, be it the entire sky, an ordinary window, an electric arc, or a lens stop, is nothing more than a certain and measurable part of a full sphere of solid angle dimension, much as the angular distance between two lines that unite at the same point is a definite part of a full circle.

If a candle flame had a diameter of one centimeter, its rays converging upon any single point of a surface located at sixty-four centimeters' distance would take on the form of a diminishing or converging cone whose altitude

is sixty-four, equal to the cone formed by an f-64 lens stop. Such a light cone is equal, practically, to one-sixty-four-thousandths the solid angle of a whole sphere. That is to say, sixty-four thousand such light cones, if placed, as a curtain of light around a point, without loss of space between them, would form a complete sphere of light having a radius of sixty-four centimeters.

Such a light, circular and one centimeter in diameter, shining upon a point at one centimeter distance, would have practically one-eighth the solid angle dimension of a hemisphere, in the same way that a hole of the same dimension cut in an opaque screen would permit the light from one-eighth of the whole sky to shine upon a point one centimeter below the opening. Such a cone would have four thousand and ninety-six solid angle units and at two centimeters from the point illuminated it would have one thousand and twenty-four solid angle units. It is for this reason that the brightness created at two centimeters would be one-quarter that created at one centimeter, and not because "light weakens by spreading". When the distance is greater than one diameter of the light source it is practically safe to say that: "The solid angle dimension of the light source varies inversely as the square of the distance". The basic truth of intensity then is: "The intensity varies directly as and because of the solid angle of the light source".

It is entirely practical then to compute the intensity of, say a white surface, from the two factors of the intrinsic brightness and the solid angle dimension of the light source. This method eliminates both area and distance as basic factors, making them purely secondary ones, important only when the light source has area and is at a definite distance, since from these two secondary factors the one basic factor of solid angle dimension may be computed.

In the little remaining space I must try to show that light does not "weaken by spreading".

With a ball thrown into the air we have a very rational mental picture of a curve of decreasing violence due to a reduction of the original energy by the friction of the atmosphere and the attraction of gravity. How different is the mental picture of the decrease of light intensity by distance. We are told that at double the distance the light has weakened by spreading so that it has then but one-fourth of its former intensity. It is curious that whatever extent of weakening a light has already suffered it still decreases exactly according to the same fixed law, and not in an increasing ratio as is the case with the ball in the air.

We know three truths of the propagation of light: Rate of vibration per second (the cause of color), amplitude of the waves (the cause of brightness), and the speed or distance traveled in a second. Color and brightness, except for reasons foreign to the matter under discussion, do not alter with distance; and, the speed per second is calculated as constant through hundreds of years.

And, since these three truths are constant at all distances, how can we uphold this "weakening by spreading" according to the law of inverse squares? The truth is, we must add the dimension of solid angle as another factor, for light creates intensity by converging at points and the intensity varies directly with the solid angle dimension of the convergance.

UNIT EXPOSURE FOR STOP USED, EIGHT SECONDS. SUBJECT BRIGHTNESS, SIXTEEN ACTINOS. 4 ÷ 16 = ¼ SECOND EXPOSURE

UNIT EXPOSURE FOR STOP USED, EIGHT SECONDS. SUBJECT BRIGHTNESS, FOUR ACTINOS. 8 ÷ 4 = 2 SECONDS EXPOSURE

In human vision this solid angle convergance is practically constant in the eye, except as the size of the iris alters for varying intensity. For this reason a lamp flame can be seen at several miles distance, at night, while the same flame could not create a reading intensity on a printed page except within comparatively short distances, since here the solid angle dimension of the flame in relation to a point on the page diminishes, practically, inversely to the square of the distance, as already explained. The fact of constant brightness at all distances is proof that light does not "weaken by spreading"; and again, the fact that exposure does not increase with the distance of the object photographed, also disproves that theory. In reality, very close objects require an increase of exposure, because, in order to focus such near subjects the lens must be moved further from the plate, thus decreases the solid angle dimension of the cone of light converging from the area of the stop opening to a point on the plate. The brightness on the plate decreases in accordance with the decrease of solid angle dimension of the impinging cone of light, and this alone is the factor that necessitates alteration of the exposure under these circumstances.

Regarding the falsity of the law of inverse squares: It is stated that this law is technically true of light "spreading from a point," and it may be

interesting to further disprove this statement. Let us imagine a light spreading from a point source and shining upon a circular surface one meter in diameter and one meter in distance. Such a surface would receive practically one-sixteenth of the total light radiating from the point. Now, if the law of inverse squares is really true with such light, at one-half meter distance the same area should receive four times one-sixteenth of the total light or one-fourth of it, and at one-quarter meter it should again receive four times one-fourth of the total light or all of it.

This confusion arising from "inverse squares" results from a misapplication of the simple law that applies to all motion radiating from a point. Take any cone form, bisect it at any distance from the apex, and the face formed will have four times the area of a face formed by bisecting the cone at half such distance. This applies to a cone of radiating light, to one of converging light, to one of green cheese or of anything else of which a cone can be imagined. It is a geometric law that has to do with the form and not with the thing itself.

Going this far we are forced to certain conclusions: Distance and area are not basic factors to be used in dealing with either radiating or converging light, since they only enable us to compute the solid angle of any light source. The so-called "law of inverse squares" is applicable practically only when the distance from the light source to the surface illuminated is equal to or greater than the diameter of such source. But even practically, this law of inverse squares is not applicable to the ordinary conditions of illumination in nature, as stated at the beginning of this article. This for the reason that surfaces, under ordinary conditions, are illuminated, not from a point, but by light from a whole hemisphere of directions,—from the sky, from the ceiling of rooms and from the walls of buildings; and there are generally many different light values confronting surfaces,—primary, secondary, tertiary, etc.

Only in the case of lenses, artificial light sources, and the like, can the law of inverse squares be at all practical in use. The one and basic truth that is absolutely necessary for proper instruction in the schools is that: Light intensity is created at independent surface points by the light which converges from space to such points and not by light "spreading" from a point. In addition, to clarify the work of photography, the computation of light intensity must be based on this consideration of solid angles. For the erroneous idea that light weakens by spreading and that the law of inverse squares applies, we must substitute the law of solid angles as applied to converging light. This last permits of light intensity computations under both natural and artificial conditions, with lenses, light apertures, flames and all light sources, as well as with flames.

Any teacher of physics reading this article should read further where I recount my experience with physics students in and about New York City. It was found these children could comprehend and apply instantly this new idea of converging light to the camera problems, using the unit measurement of brightness to instantly compute practical problems in exposure. If these children saw, at the same time, the falacy of the idea that: "Light weakens by spreading", it

UNIT EXPOSURE FOR STOP USED, EIGHT SECONDS. SUBJECT BRIGHTNESS, EIGHT ACTINOS. 8 ÷ 8 = 1 SECOND EXPOSURE

UNIT EXPOSURE FOR STOP USED, TWO SECONDS. SUBJECT BRIGHTNESS, EIGHT ACTINOS. 2 ÷ 8 = ¼ SECOND EXPOSURE

is certainly time to discard these theories which, generation after generation, have kept us all in ignorance of the truth concerning light intensity.

In Unit Photography the problem of exposure is made quite simple by employing this theory of solid angle in connection with a practical unit of such dimension called the actino, and an actinometer based thereon. This last can easily be constructed as follows: Take a thin, cardboard box, such as a pill box, obtainable in any drug store, and in its lid cut a circular hole having a diameter equal to the thickness of the box. In the upper outside corner of an ordinary pocket note-book cover, cut a small hole of irregular or star-like form. After cutting away a portion of the bottom of the box, paste it securely to the cover of the note book in such a way that the irregular hole in the latter will come directly under the center of the circular hole in the box lid. Remove the lid, blacken its under side and the inside of the box, and then fasten it permanently in position.

This device, with a strip of sensitive paper beneath the irregular opening in the note-book cover, is to be held rather close to the surface whose intensity is to be measured, close enough so that only the light that would otherwise reach the surface can possibly reach the sensitive paper through the hole in the box lid. So employed, the light from practically one-eighth of a hemisphere

is allowed to pass through the hole and act upon the sensitive paper. In other words, one-eighth of the whole sky can shine upon the sensitive paper when the device is held to face the sky; although, of course, a very small area can be made to occupy this same solid angle if the meter is not held too far removed from it.

This meter is used in the same way as other exposure determining devices of a like nature; except that, instead of tinting the sensitive paper beneath the irregular opening to match a certain color, one seeks to find, by trial, the shortest interval in which is produced a "least visible" tint or one that is just perceptible upon examining the paper. In timing this interval, use only the geometrical progressive numbers of one, two, four, eight, sixteen, and so on, seconds when allowing light to enter the meter and tint the paper. The paper used in my Aabameter, and this paper can be used in the meter I have described, has a unit tint time of sixty-four seconds. This number, divided by the actual tint time as found, gives the brightness of the surface in actinos, the unit of measurement of the Unit System. If Solio or similar paper is used, the unit tint time is eight times sixty-four or five hundred and twelve seconds, and this is the number that must be divided by the tint time to get the brightness in actinos. The unit time for the average gaslight paper is one hundred and twenty-eight seconds, since it is about one-half as fast as the Aabameter paper.

In my next article, to be published in the following issue, I will give the application of this principle of light intensity and the unit of measurement, the actino, to the problems of exposure. With an actinometer, made as described, by which one can determine the brightness of light intensity of the subject photographed, in actino units, and with the table of exposures for different stops that I will give, any reader should be able to test out my Unit Photography method to his entire satisfaction. Should he do this, I feel quite sure he will agree with me that the method is not only rational and logical, but one that assures with the minimum expenditure of time, trouble and mental exertion, absolutely correct exposure under any and all conditions.

THE BRIDGE By N. F. WOOSTER

The Dusting-On or Powder Process

By Edgar Felloes

With Illustrations by the Author

One of the most practical methods of modifying a negative is by employing what is known as the powder process; a method nearly as old as photography itself and one that should be better understood. The theory of the process is this: Given, a sticky substance, one having an affinity for moisture, it is sensitized with a suitable salt; and, on exposure to light, this substance becomes less sticky. If we spread a thin film of this mixture upon a plate of glass, for instance, and expose it under a negative a suitable length of time, we shall find, on examination, that the film has undergone a change. Those portions that were wholly protected by the blacks in the negative will regain their full stickiness or tackiness through their ability to absorb moisture from the atmosphere; whereas, those portions under the half-tones will be affected by moisture to a less degree, and if the negative shows clear glass in parts, the correspondingly stronger light impression will still more greatly modify the sensitive coating. If we next take a fine powder and dust it over this more or less sticky impression we will find a picture mechanically developed by a greater or less quantity of the powder adhering to the different areas of light impressed surface.

Giving it a little thought, the reader will understand why a negative impression is secured from a negative plate, and therein lies the great value of the process. We can take our negative and strengthen it in the desired portions by local applications of the powder. By this means we are enabled to put a little of our own individuality into our negative, to emphasize certain portions of our picture.

There have been a large number of formulas evolved by various workers to meet the above requirements. I here give the one I used in my own practice, one that has simplicity to recommend it. I also give particulars of another formula and would suggest to the interested reader the advisability of trying it out. The first, Obernetter's formula, the one I am most familiar with, is as follows:

Dexterine	60 grains
White Sugar	75 grains
Ammonium bichromate	30 grains
Glycerine	2 to 8 drops
Distilled water	3 ounces

Some workers add a little alcohol to this formula to facilitate coating.

The second formula, devised, I believe, by W. B. Bolton, and for which he has claimed many advantages, was published originally in the *British Journal of Photography,* as follows:

Mucilage of linseed	20 ounces
Sugar candy or loaf sugar	1 ounce
Liquor ammonia, fort	½ ounce
Potassium bichromate	1 ounce
Golden syrup as required.	

The linseed mucilage is made by taking a moderately heaped teaspoonful of clean, unground linseed, washing it in two or three changes of cold water to remove dust and dirt, and then allow it to soak for some hours. The husks will be found to be surrounded by a glazy mass of gelatinous mucilage, and the whole should be transferred to an enamelled saucepan and raised to the boiling point, stirring well the whole time. After simmering for five or ten minutes, remove from the fire, and when ebullition has ceased, if the liquid be thick or "ropy", add more water and strain through fine muslin while still hot, to remove the seeds. Afterwards filter more closely in front of the fire to keep the liquid hot, and then allow to cool; still further thinning if it flows unevenly when poured on to glass. When quite cold, add the ammonia; and, after some hours, again filter and set aside for some days or until the liquid becomes quite clear and bright and has deposited any flocculent matter that may not have been removed by the filtration.

The bichromate of potash, in crystal form, should be added a short time before required for use; and, if convenient, the solution should be heated, filtered, and used warm, a finer and more even film being obtained in that way. When newly mixed the sensitive solution is a bright, yellow orange color that gradually changes to a brownish tinge with age. It remains usable for some days, however, if kept in a cool dark place, but when it becomes dark it should be thrown away.

In the Obernetter formula the reader will notice that the amount of glycerine is given as two to eight drops. This for the reason that the amount of glycerine required is dependent upon the humidity of the atmosphere; if the weather is moist use the lesser amount, if dry, increase the quantity. I might point out the fact that here on the coast a lesser amount is required than is the case inland. The same discrimination will apply to the golden syrup called for in the Bolton formula. Golden syrup is merely a high grade of molasses and may be substituted for the glycerine, should one so desire.

I have selected a straight print from an unretouched negative as an object lesson, hoping by so doing to give a more practical description of the process. We will presume that the photographer was attracted to this view by the beauty of the two trees in the foreground. The rocks and the patch of sunlight lend interest to the scene. The bushes in the background serve their purpose admirably; they are "quiet", that is, they keep their place. This background, which one hardly notices, is, in its own way, as important as the two trees; but, because it is so good it keeps its subordinate place, differing from the "spotty" backgrounds so frequently found in the landscape photograph.

The trees being the point of interest, let us emphasize them and thereby make the photograph more interesting. We first procure half a dozen 5x7 plates—discarded negatives will serve a useful purpose here—and thoroughly

clean them preparatory to sensitizing. This last as follows: Having a plate rack handy, we rinse one of the glass plates under the faucet; and, while still wet, flow over it a little of the sensitizing solution. To do this take the lower left hand corner of the plate between the finger and thumb and hold it in a

STRAIGHT PRINT FROM UNRETOUCHED NEGATIVE

horizontal position; pour about half an ounce of the solution in a pool in the center; and, then gently raising the near edge of the plate so that the sensitizer may flow to the upper right hand corner, tilt slightly to the left and the solution will travel that way, then lower the near end and let the sensitizer

THE PICTURE MADE MORE INTERESTING BY MODIFICATION

come in an unbroken line and run off at the lower right hand corner into the sink. This first coating carries the surplus water with it and off the plate. Next repeat the operation in the same way with a second coating. The surplus this time, however, may be run into a graduate to be carefully filtered and used later.

The plate, now uniformly coated, should be placed in the rack to drain and the rest proceeded with in like manner. When all are coated see to it that all the sensitized surfaces face in the same direction in the rack, as it is not easy to determine which is the coated side when the plates are dry. The rack should then be placed in a warm, but not hot, oven, and the door gently closed, when the plates will dry in a few minutes. An oven is not absolutely necessary but it has the advantage of protecting the plates from floating particles of dust that would be fatal to good results through later serving as lodgement for an excess of powder causing unsightly blemishes. The oven I refer to is the ordinary kitchen variety. The plates, in drying, should at no time become warmer than would feel comfortable when held on the back of one's hand.

Assuming that our negative is a film one, because amateurs of today use them generally, we take one of the plates from the oven while still slightly warm, and place the film negative with its film side next to its sensitized surface, and then print, for say ten minutes, in good subdued daylight. There are no rules for timing the exposure, as it depends greatly upon the results one wishes to secure. Examining our picture to determine what is needed, we decide to bring out the trees and yet have as little powder on the background as possible. To do this our exposure must be full, as it will be an advantage to so time the exposure that the blacks in the two trees, which correspond to the clear parts of the negative, shall be strongly impressed and thereby take no powder. On the other hand, the light patches on the trunks and branches, being protected by the darks in the negative, will prevent much light action on the sensitized coating and here is where the most powder will stick. Therefore, in the after printing the trees will show more brilliantly; and furthermore, we will be enabled to print the background down to a lower tone, giving a richer color to the finished print.

It would also be an advantage to apply some powder to the rocks on the near side of the stream, thus emphasizing the line suggested by the distant curve of light on the left of the picture. The emphasis given this line strengthens the composition and adds to the perspective. Avoid powdering the rocks in the stream itself or those on the further bank, as they need no attention.

We make the exposure, take the frame into artificial light, open it, remove the plate and set it on one side to absorb a little moisture from the atmosphere. Here again the necessary time cannot be fixed, as it depends upon the humidity. We can, however, try the plate in about five minutes and judge of our success. The necessary tools and materials are easily procurable. They consist of a few camel hair brushes of various sizes for applying the powder, a spirit lamp or small stove for warming the plate from time to time, and some finely powdered graphite, such as electrotypers use. A fine quality of lampblack can be employed, but whichever is used, remember that it cannot be either too fine nor too dry.

After the plate has rested for five minutes as mentioned above, take a suitable sized brush, which must be dry, and apply a little of the powder. If the plate has become sufficiently tacky, the powder will adhere to the highlights first, and then the half-tones will begin to build up. If the plate shows

DAWSON CITY UNDER THE NORTHERN LIGHT By GERALD DOODY

signs of "racing", that is, when through having absorbed an excess of moisture, the powder begins to get unmanageable, immediately warm it over the lamp or stove and proceed carefully. Should the picture, despite all due care, develop heavy or smudgy, we may suspect either under-exposure or a coating too rich in glycerine or molasses. If on the other hand, only the high-lights take the powder, it is a sign of over-exposure. While this all sounds rather uncertain, one can rely on a very little practice to give him a good degree of proficiency, and fortunately, the cost of the materials used is very small. The beginners will almost invariably apply too much powder, not realizing that a very little of the graphite, properly applied, will produce a marked change in the final print.

Let us presume that one of the six plates has given us a satisfactory result, that all loose powder has been removed, and that the required modification has been achieved. We now take the powdered or developed plate into daylight and expose it, both back and front, for, say, ten minutes in the sun. This will insolubilize the entire film so that its tendency to become sticky by absorption of moisture is destroyed. We must next remove the yellow color from this, our control negative, and several methods are available. Placing equal parts of alcohol and water in a tray and gently lower the plate therein for a short time and repeating in a second tray of the same mixture, should remove

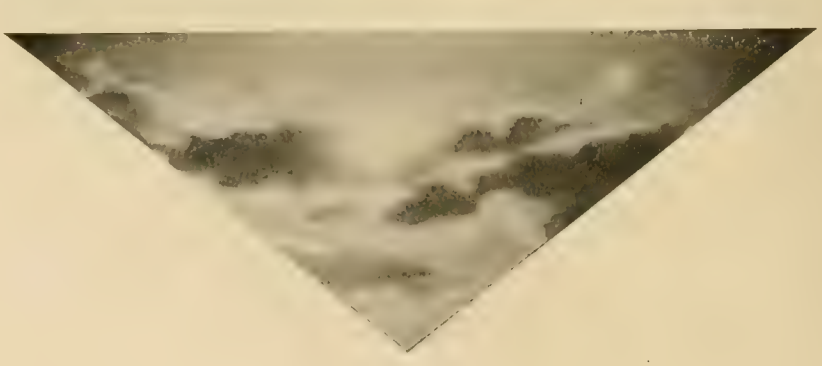
all color from the film. My own method of procedure, which I prefer because the delicate image is less liable to damage, is as follows:

After the plate has been exposed in the sun I coat it with a two per cent plain collodion. Immediately this has set, which takes about half a minute, I lower it into a tray of water to soften the bichromate, and then rinse it in gently running water under the faucet. This gives a colorless plate that is ready for printing as soon as dry. To flow collodion, proceed in the same way as in coating the plates with the sensitizer, except that the plate must of course be cold and dry. Our plate dry, we place the film negative over it in perfect register and bind one edge with lantern slide binding; our finished or composite negative being then ready for making the final picture. The reader will notice he can do any amount of experimenting he may desire, even with his pet negative, for the method has this advantage, one does not in any way tamper with the negative itself.

By way of conclusion I might enumerate a few of the things this powder process makes possible. By its aid we can add a figure or object to a landscape; or, we can add a landscape or other background to a portrait negative. We can also build up under-exposed shadows and thereby strengthen detail which would be lost in direct printing from the negative. It sometimes happens that we wish to block out the sky of a negative in order to substitute clouds from another plate. Where the sky is an open one, we can apply opaque and a paper mask, but where branches of trees cut into the sky, this is a clumsy method. With the powder process we can do this beautifully and make a workmanlike job of it at the same time.

With the best of intentions a writer may not make his meaning clear to all of his readers. Any amateur finding difficulty in carrying out the instructions I have given is invited to write me, care of CAMERA CRAFT, and I will do all I can to help.

Our lives in every direction, every occupation, are filled with the presence and influence of Art; and as every day of our lives, we are called upon to exercise a choice or to express an opinion bearing on the subject, does it not become a moral obligation to exercise a wide choice, to express a just opinion and since there is a good and bad, a true and false in Art, to learn to distinguish them?—LUCY CRANE.



What Are Your Pictures Worth?

By John A. Schreurs

With Illustrations by the Author

Have the prices that the photographer places upon the product of his skill and ability, or the product of his camera, lens, plates and paper, or of the two combined, any bearing upon the prevalent "cost of high living"? Are his prices consistent, are they based on anything tangible, is there any rhyme or reason for the wide variation that is shown? Why does one photographer offer his patrons the conventional and ever obtainable "three dollars per dozen", while another furnishes pictures at a price ranging from twenty-five to fifty dollars or more for a like number? Is there any other craft that offers as wide a range of prices for its product, a marketable commodity, as does the photographic one? The product of the commercial photographer, in the main, supplies a business demand and for that reason a price, that is fairly uniform, has been made imperative. With portrait photography the case seems to be somewhat different.

Furniture, wearing apparel, even silverware and the like, do not present such wide variations in price for articles capable of giving the same service. Setting aside a consideration of the artistic quality that may be given the photographic portrait, the purchaser's cash should buy as much of serviceable value in one instance as in any other. The customer, confronted by a price that seems to him too high, complains that he does not wish to pay so much for so large an amount of paper stock. The customer is simply comparing the price he is asked to pay for so small an amount of material with an amount of food, clothing or some other commodity that he can purchase for a like or smaller amount. Of course the photographer assures the credulous patron that the cover does not figure in the price, although he well knows that the stock dealer has the prices of these same covers about as high as it can be put. "But is not twenty dollars rather high for these pictures? I like the style very much but the price seems more than I can pay", the customer says. And from the customer's point of view he is right, in actual cash value he is right. Yet the price is the usual one with that particular photographer because some, with luxurious buying capacity, see fit to purchase his wares. This particular photographer is maintaining a price simply by his ability to secure it in his own way.

This "getting the price" is a theme that comes up quite often in conversation between members of the fraternity. "But how do you get these prices?" is a question frequently asked. Some photographers can get these high prices while others fail to do so, despite the fact that both offer seemingly like pictures in the same style of covers. Good salesmanship, a desirable location and other factors may make for some difference, but they do not account for the wide

variation in price. Something more must go into the package of photographs sold for twenty-five dollars than into that sold for less than half that price, although at either price the cost of material, overhead expense in that particular studio, and a profit, should be figured in.

While the value of a marketable article is, in reality, dependent mainly upon the amount of service or pleasure it is capable of rendering the purchaser, the price of such a commodity is sometimes greatly enhanced by the ability of the producer to make it salable, to make it more desirable, than other like products of like service-rendering capacity. And therefore, the product of the photographer is worth, in excess of its actual cost and a fair profit, just the additional sum that represents the value of the additional attractiveness it has been given. We can, of course, turn out portraits and sell them at a price that will cover the cost of material, plus a profit, not forgetting to figure in the overhead expenses which may be larger or smaller according to the efficiency secured, and we can make a fair success by so doing, if enough business is handled. We may, if endowed with good salesmanship and the faculty of attracting the attention of the luxurious living classes who make a practice of being photographed often and in many ways, also achieve a measure of success. In the first case we will be setting too low a price upon a product that should partake of the artistic, and in the latter case we will be setting a high standard as to price while stimulating competition for the class of business that is all too limited. Neither course is entirely satisfactory to the photographer who finds little delight in seeing just how cheaply he can produce a given number of "portraits", or in sending out invitations for free sittings that always places him on the defensive when it comes to getting an order.

The home portraitist is really the most consistent, as far as prices in relation to the service given is concerned, of all the fraternity. His prices are never low, in the sense that some of the studio prices are, and they rarely are in excess of the value put into the delivered work. His opportunities for securing a pleasing and natural portrait are greater, and therein lies his ability to produce a picture having a greater attraction for the customer and his friends. He understands the advantage of making his portraits more salable, more desirable, by incorporating this quality of naturalness. He can, therefore, avail himself of the opportunity for an increased price, one greater than the "cost plus a profit" that I have mentioned. He is really, while charging the customer only a fair price for the amount of desirability delivered, receiving payment for the ability that he can show in securing results that have this added value. If the average individual cared only for a picture that was "pretty" in its egg-shell skin texture and entire lack of natural expression, the "so-much-material" idea of some of the photographers' patrons would be quite proper, and is quite proper when the article purchased is of the character suggested. But, the average patron has a keen appreciation of the "something-more" that the skilful photographer can put into his pictures. The pleased patron, the one who has received a little more in value than the cost of the material plus a profit, keeps talking about it because of that fact. Such a one is an asset always, one that helps to fix a standard for that photographer. The pictures delivered had been made more salable, they were more desirable, they made more business

"JUNE"—A HOME PORTRAIT

and they permitted of a higher price being charged.

The photographer should occasionally go to his competitor's studio for a sitting, pay eighteen dollars for some prints and see how it feels to his own patrons. The topic of high prices is always stimulating and when, at some convention, we become enthused, let us remember that there is something more to the subject than a choice between many patrons at a low price and a few at a higher one. Let us avoid the temptation of a good ticket scheme to end in a bad dream. A scarcity of sittings, dull times, resort to the Kodak, the number entering the ranks each year, should not be permitted to lower the standard of prices for photographic portraits that are real portraits. If our work has not this quality of desirability, if it is not more salable, there will always be a lack of sittings. If times are dull, there is still the same desire, if the amateur print has taken the place of the tintype, there should be no regret, and, if we cannot meet the competition of the new arrivals in the ranks, it is because our greater skill and experience does not permit us to make our work more salable, more to be desired.

The photographer who can turn out a large amount of work of the ordinary kind at a low price, will always appeal to a class made up of those to whom a photograph is a "photo". The one that can attract the trade of those who are willing to pay an excessive price, and, through a knack of handling such business, derive a fair profit from a few sittings, will always be with us. But neither will establish the standard of prices or interfere in the least with the photographer who is giving real value, genuine service, and a knowledge of

the work that makes his productions more salable, more desirable. The home portraitist is doing this, is establishing the price and the quality as well, to no small degree. He does not resort to "dizzytypes" or other devices. Instead, his efforts are bent towards producing portraits that show the individuality of the subject and show it in an easy and natural manner. His sitters come before him in their own homes where there is a lack of restraint that is conducive to the securing of true portraits. The man in the studio will find the task more difficult, but far from an impossible one. As he strives to attain the end he will find that his efforts are more and more appreciated as they are increased. The question of price, as compared with the actual material used, will become a less persistent complaint. The product of his skill will become a matter of indi-

"COMO EN SPECULUM"

"BONITA VISTA"

vidual desirability, something entirely different from that of silverware, furniture and the like, having a common or exchange value.

The photographer who coins the chance result of a favorable circumstance that resulted in a pleasing likeness, into a good price, invites disaster. On the reputation so achieved, pictures are delivered to the next patron, pictures that please neither the photographer or his customer, yet the price is the same. One patron receives value, the other does not. Good results should not be due to chance. The photographer should have the personality that makes it possible for him to detect, determine, and secure, a real likeness of the patron. He then becomes more than a mechanician of the camera, a mere maker of photographs. The pleasing portrait, the desirable one, the picture that is more salable, is the one that has a double value. Such a picture has the value of the material, plus

a profit, plus, what is more important, the brought-out personality of the sitter. And it is this latter value that places the work above the question of the cost of the material, it is this value that makes the work more salable, and it is this value that will establish the standard of price.

We talk much of character in a photographer's work. If the sitter contributes all the character, without being in the least aided by some of that psychological essence in the makeup of the camerist, the latter will be the loser if patrons find a worker more capable of producing the desired results. The artist should be a gentleman; and fortunately, character makes the gentleman, giving him that personality that will draw forth the same in the sitter. The result is an increased value through the better service given. If the home portraitist secures more personality in his pictures through the freedom from restraint that his sitters feel, the studio man can make character portraits if he will but try, setting his standard sufficiently high. He must have imagination, an ideal for which to strive, a desire for individuality, and an enthusiasm for his work.

All these are needed to meet the discouragements that will strew his path. Let a dull week or two cloud the horizon of one's prospects until a collapse of one's bank account seems imminent and one is inclined to think: "My prices must be too high; the people do not appreciate good work; I must get out a low priced leader". When this happens, have an oculist examine your vision or get a phrenologist to survey the bumps and depressions on your sphere. Cases have been reported of strabismus (crossed eyes), from an effort to observe the behavior of a competitor and one's own actions at the same time.

The photographer will find that his portraits are worth just about what he can put into them in the way of desirability. His photographs are worth more or less, according to the salability that he gives them. The real personality of the sitter must be portrayed. The package of pictures that he hands over must contain something more than so much photographic material that has passed through the hands of a camera mechanician. Just to the extent that this added value is given can the price be maintained. While some may be selling the product of their skill for less than they should and some may be securing a higher price than their work merits, the truth remains that our pictures are worth just what we put into them. Furthermore, they become more desirable, more salable, as this added value is increased.

Take a Developing Tank With You

"A Dollar's Worth of Advice"

Illustrations by Various Contributors

A young lady writes saying she has never done any developing or printing, but has always sent her exposures to So-and-So to be "finished". She has had a camera a year or more, has got so she is pretty sure of good results, and has often been tempted to try her luck at developing, etc., but has never done so. She expects, before long, to go away on a visit of several months, to an out-of-the-way section where there is no one who does developing and printing. She asks whether I think she would best attempt to do her own finishing, while away, mail the films back to be done, or save them all undeveloped until she returns. The young lady is very anxious to get some good pictures on this trip.

"My Dear Miss E————————:

"I am sorry you have never yielded to the temptation to do your own developing and printing. You have missed a great deal of the pleasure of amateur photography by turning over your exposed films to someone else. It's almost like eating the bread and butter and then asking someone else to eat your dessert for you. But it is never too late to mend.

"By all means get a developing tank at once, and learn how to use it. The advertisement says 'the experience is in the tank', and there is more truth than fiction in that statement. From the fact that though you do not do your own

LUNCHEON AT THE ROADSIDE CAMP — By F. R. SHEPHERD

A WINTER'S NIGHT IN CORDOVA, ALASKA Copyrighted by H. A. IVES

developing and printing you have acquired a degree of skill with the camera, I infer that you have also learned that the printed directions and books of instructions that come with photographic apparatus are intended to be read and heeded. They are not gotten out just to keep the printer busy. That sounds a little sarcastic, doesn't it? But you wouldn't blame me if you knew how many times people have asked me questions that are very clearly and carefully answered in the directions that came with their cameras. All this simply emphasizes the fact that though 'the experience is in the tank', it is quite necessary to follow the printed instructions that come with the tank. It's all so simple that I don't see how you can go wrong if you do that.

"Get accustomed to the tank before you start on your trip, if you have the time. At any rate, read the instructions carefully. Find out what you will need beside the tank itself. By all means use the chemicals that are put up by the makers of the film, and buy enough of the powders for developing and fixing to do the number of films that you take with you. If you are going to be way out in the woods, you might experience difficulty or delay in getting supplies. By the way, it would be an excellent idea for you to have a thermometer with which to test the temperature of the developing solution. You know tank development is calculated on 'time and temperature', and if you guess at the temperature the whole operation becomes more or less uncertain. Years ago there was a good deal of guesswork about photography. Gradually the guessing and uncertainty have been eliminated, so that now almost everything that used to be left to the judgment, or guessed at in other words, is now measured; and the production of twelve good pictures from twelve exposures

is just that much more certain. You might be able to get along without a thermometer, but I advise you to have one.

"By the way, again, if you are going to a region where it is very hot and moist, it will be well for you to get the films specially packed 'for the tropics'. At a little extra expense you can buy the film with each roll sealed in an individual tin can. This keeps out the moisture and keeps the film from spoiling much longer than without this protection. I have a niece who spent a year in Porto Rico, and she sent her films to me to be developed. Some had been sealed in the tin cans, some had not. And there was considerable difference. Of course, if you are going up in the mountains where the air is cool and dry, you needn't bother with the tin cans. But wherever you are, keep the films in as dry and cool a place as you can find.

"In any case it is best to develop the films as soon as possible after exposure. There are two great advantages in doing your own developing while away on a trip. In the first place, prompt development gives the film less opportunity to be affected by heat and moisture; and in the second place, it gives you a chance to try again if an occasional picture turns out unsatisfactorily.

"Any water that is clear enough and pure enough to drink, is all right to use for mixing developing solutions. I mention this, incidentally, because there has been a lot of advice given about the desirability of having distilled water, or at least water that has been boiled and filtered, for the making of developing solutions. Honestly, I don't believe it is necessary to be so particular as all that. I'm considerable of an old woman, myself, in the care I take with my photographic work, but I have used water for developer that wasn't any too clean and that I should hesitate to drink, without ever being able to notice any ill effect

THE LEAF GATHERERS
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Copyrighted by W. E. BERTLING

IN THE FOOTHILLS—CALIFORNIA By W. ROB WHYTE

on the films. Of course, use the cleanest water you can find; but, as I said before, water that is safe to drink is safe also to use for developer.

"Printing, as long as you know a good negative when you see it, can be left till you get home, if you can stand the strain. I mean if you can endure the suspense of having a lot of good negatives without being able to tell just how good the finished pictures are going to look. I don't believe I could do it, and so I am going to advise you to take along some blue print paper; its inexpensive and requires only water, good drinking water. You might get this blue print paper in the form of post cards and then you will be able to share the delights of your trip with the folks at home without waiting till you get back, and save postage in the bargain. Don't try particularly to make negatives that will make the best prints on blue paper, because when you get back home you will doubtless make some prints or have prints made from the same negatives on gaslight paper. You know which of your negatives make gaslight paper prints that are clearest and brightest. Endeavor to make your vacation negatives as nearly like these in quality as you can, bearing in mind that too long development gives a dark, dense negative, and too short development gives a negative that is too nearly transparent, with a thin ghostly image. You might take a good negative along with you as a guide.

"I once went away for the summer and took a 5x7 plate camera with me; also red lamp, trays and chemicals. While I got some good pictures, I will never do it that way again. There was no room in which I could develop that could conveniently be made dark enough in the daytime, so I had to wait until about nine o'clock in the evening before I started operations that often lasted until midnight when I would prefer to have been out in the moonlight or asleep in bed. It was too much of a good thing. And the load of plates, apparatus and supplies that I lugged home in two suit cases, would have dis-

couraged an able-bodied horse. I wouldn't advise you to attempt anything like that. But the tank won't add much to your baggage, and you can use it any time; you don't have to wait until night.

"You are very anxious to get some good pictures while you are away. Perhaps you won't trust yourself with the tank after all, and will feel safer to trust these exposures to the one who has always done your developing. Very well. If you feel that way about it, mail the exposed films, carefully wrapped, at short intervals. That is better than to save them all until you get home, because, as I said before, prompt development gives less opportunity for the film to be affected by heat and dampness. The little tin cans I told you about will come in handy for mailing exposed films.

"But whether you attempt your own developing now or later, I do certainly advise you to try to do all your own work, from loading the camera to mounting the prints. I feel very strongly about this, and believe it is the only right way to do. Certainly it is the only way you can get a thorough understanding of photography. It is almost a foregone conclusion that sooner or later your interest and enthusiasm in photography will wane and die if you continue to turn over your work to someone else. While if you do make your own negatives, and do your own printing, there is no end to the interesting things you will learn. I have been at it more than twenty-five years and I am learning something all the time. If I live to a good old age, I fondly expect that my photographic hobby will accompany me to the end. I should be lost entirely without Pyro and Hypo, the twin gods of photography.

"Let me know how you succeed with the tank, and if I can be of further service don't hesitate to call on me.

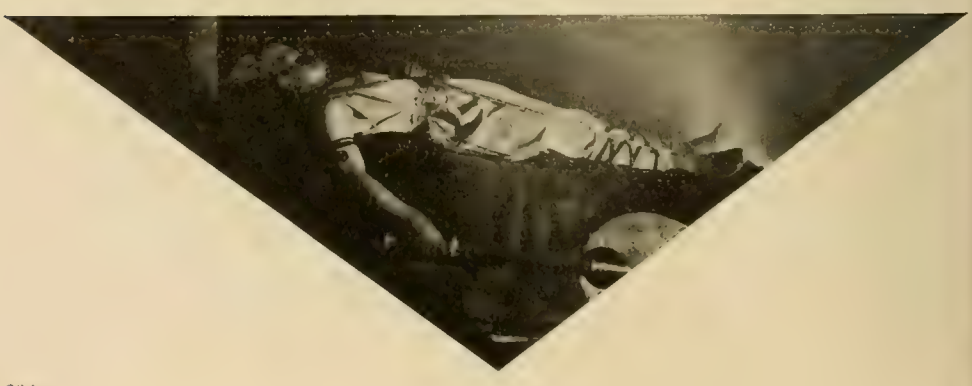
"Wishing you all success,

"Very truly,

(Signed) "CHARLES F. RICE.

"Mamaroneck, N. Y., August 6, 1917."

The more you study the great masters, the more you will see that with them there was no hurry; there was but the patient and steady aim at good work —the earnest striving after perfection.—ALPHONSE LEGROS.



PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

ABOLISHING THE DARKROOM: My work demands the making of about half a gross of 6½x8½ negatives each week, as I travel about the country. I have provided myself with a galvanized iron washing box with rubber tubing attached so that water enters at the bottom and flows over at one end of the top. The plates go cross-wise in this and length-wise in a wooden fixing bath that fits inside of it with a space at one end that holds three bottles containing stock developing solutions. Inside of the fixing box furnishes space for a small ruby light, a graduate, a thermometer, a plate brush, a generous square of rubber cloth, and a few other odds and ends. All these go into a fiber carrying case, made to fit, except that it is a little deeper than necessary so that a couple of hard rubber trays finds space at the top. With this equipment I am prepared to do developing in any hotel room that I may be using by simply waiting for night to come. The rubber cloth is spread over the table to be used, the fixing bath placed at the back with the two trays in front; and, if the number of plates to be developed exceeds the capacity of the fixing bath, the inlet of the washing box is plugged with a cork and that utensil is also placed on the table. I then have only to prepare the fixing bath, the developer and the ruby light and I am ready to draw the shades, turn out the white lights and proceed. When done the washing box is carried to the nearest faucet or bath tub, the rubber tubing connected, and washing goes on while the used equipment is emptied, wiped off and made ready for repacking when the washing box is available.—F. G. H. Delaware.

FLASHLIGHT INTERIORS: When one makes an interior with the flash close behind the camera, the result is flat and unnatural because the shadows are all directly behind the objects included and therefore not in evidence. Some even go to the extent of supposing that the flat effect is due to their having used too much powder, and cut down the amount. The real solution of the difficulty is to get the flash well to the side, using a hood over the lens. Then there will be shadows cast across the picture and objects will stand out in proper relief. If these shadows are inclined to be too strong, simply lower their tone by discharging a small flash from the opposite side.—J. K. L., Ohio.

A BLACK BACKGROUND: When one uses the etching tool to scrape away the background part of a negative, leaving clear glass through which to print, the effect is somewhat unnatural in the blackness secured in the finished picture. I find it a better plan to coat the desired part of the negative image with asphaltum varnish such as photo-engravers use as a resist in their etching, and then subject the negative to a reducing bath that will take out the undesirable background image, leaving the gelatine film. The ordinary Farmer's reducer

can be used but it is inclined to slightly yellow the film. A better, though rather poisonous reducer, is made by adding thirty minims of a ten per cent solution of iodine and five minims of a like solution of potassium cyanide, to each ounce of water required to make the necessary amount. One can judge of the better effect of a black background printed through a clear gelatine film and one printed through clear glass by scraping away a part of the film from a normally black background portion of a negative and then making a print therefrom.—A. S. D., Connecticut.

PYRO STAINS ON NEGATIVES: The best formula that I have ever tried for this purpose is made up as follows:

Iron sulphate	3 ounces
Alum	1 ounce
Citric Acid	1 ounce
Water	20 ounces

The negative should be immersed in this until the stain disappears and then well washed. My own practice is to rinse the negative from the fixing bath and then immerse in the above before washing.—E. T. R., Washington.

DUST IN THE BELLOWS: The average photographer does not realize what an amount of dust will collect in the folds of his camera bellows and just how much trouble this dust will continue to make until it is removed. The best way to get rid of this dust is to wipe out the interior of the bellows with a piece of soft cloth that has been given a slightly absorbent surface by having had a few drops of glycerine distributed through its fiber by hanging a few hours in a warm room. The bellows should of course be extended as far as they will go in order to allow the cloth to get into the folds.—A. S. O., Florida.

PHOTOGRAPHING STAINED GLASS WINDOWS: The right way to do this, if a recent experience consisting of repeated trials under different conditions, means anything, is to block out all surrounding light except that coming through the window being photographed, and then use an orthochromatic plate and color filter. This means photographing the stained glass by transmitted light, as far as possible, as of course it would be out of question to exclude all the light entering the room. The Wratten K2 filter and the Wratten orthochromatic plate is an excellent combination.—A. S. D., Florida.

USING AN EYEPIECE: As we grow older the focus of our eyes is quite likely to become gradually longer, perhaps without our noticing it until we have to hold our book or paper at an uncomfortable distance from the eyes. Focusing becomes difficult, and then it is advisable to get one of these simple little focusing eyepieces. Even if one's eyes are perfectly normal, an eyepiece will be found a great convenience, particularly when critical focusing is to be done.—O. S. A., Florida.

SQUEEGEE PRINTS STICKING: After rubbing plate clean and bright with a soft cloth, take a trace of vaseline and rub it on, getting it well distributed. Next, rub again with a dry cloth until it is apparently all removed. Finally, dust with talcum and polish. An occasional treatment will entirely prevent the annoying tendency of squeegeed prints to stick to the ferrotype plates.—C. H. H., North Dakota.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, September, 1917 No. 9

Photographs of War Activities

The Committee of Public Information, 10 Jackson Place, Washington, D. C., has issued a bulletin, entitled *Information Concerning the Making and Distribution of Pictures that Show the Activities of the Army and Navy;* and, we suppose, copies thereof will be supplied photographers and others interested, upon request. From this bulletin we reprint the following:

"Applications for permits to make pictures showing the activities of the Army, the Navy, and other departments and bureaus of the Government, if addressed to the Committee on Public Information, will be referred directly to the proper authorities, and unnecessary delays in securing proper consideration of such requests will be thereby avoided. It is the function of this committee to secure access for the photographers, whenever possible, to the Government departments, and to co-operate with them in making a pictorial record of the work that is being done. This task will be facilitated if all requests for permits are handled through one central authoritative office.

"Special permits will be issued on occasions, on condition that all photographs and drawings be submitted for approval to the Committee on Public Information, unless otherwise specified. Requests for permits should explain the character of the pictures desired, and the uses for which they are intended, and should be accompanied by sufficient references to establish the character and responsibility of the person or organization from which the request comes.

"Pursuant to instructions emanating from the War Department and from the Navy Department, pictures of the following subjects should not be made or circulated without special permission in writing:

"1. Army fortifications, magazines, wireless plants, navy yards, manufactories of munitions or any military equipment that has been installed or adopted since the outbreak of the war, as well as pictures that give information concerning ports of embarkation of troops or the fixed land defenses of the United States, or the number, nature, or position of their guns.

"2. Close views of the details of construction, as well as of all tests, or new weapons, equipment, or instruments used by the Army or Navy, such as: Aeroplane devices, gun-handling gear, electric communications, stabilizers, submarine fixtures, sighting mechanisms, range-finding instruments, fire controls, turret interiors, and new inventions and experiments of military and naval import.

"3. Movements of troops marching or in transport in such a way as to identify localities, or pictures that reveal special duties of detachments, positions of guards or sentinels, or that show new military formations.

"4. Locations of mine fields, or the location, identity, or number of war-

ships belonging to our own Navy or to the navy of any country at war with Germany.

"5. Views, in either news or fiction films, that tend to misrepresent or to arouse prejudice against friendly nations.

"6. Scenes abroad that have not been passed by censors or friendly nations. Whether or not specifically prohibited by these rulings, when pictures are plainly of a character that require official consideration, representatives of motion-picture companies and distributing agencies, exhibitors, illustrative news bureaus, editors, and others, are themselves expected to withhold publication. When there is doubt as to the admissibility of the pictures, communication should be had immediately with the Committee on Public Information, which, with the least delay possible, will pass upon them.

"Three prints from all photographic plates and films exposed with permission by other than the official photographers within territory controlled by the Army and Navy should be submitted for approval to the Committee on Public Information *before publication.* One print will be retained as a record by the department from which the permit is issued; one print will be retained by the Committee on Public Information; and the third print (if the picture is declared suitable for public distribution) will be returned to the owner, bearing the imprint, 'Passed by the Committee on Public Information, Washington'. The publication, sale or other distribution of such pictures as are officially disapproved is forbidden.

"Photographs made on permits issued by other departments and bureaus should be submitted for approval before publication. Still photographs should be submitted in duplicate; one print, if approved, will be stamped, 'Passed by the Committee on Public Information, Washington', and will be returned to the owner; the duplicate print will be kept for the files.

"Motion-picture producers, illustrative news bureaus, and photographers generally are invited to avail themselves of the advice of the Committee on Public Information in regard to the admissibility of pictures that are taken without permits. In such cases photographic prints should be submitted in duplicate to the Committee on Public Information. If admissible, one print will be marked, 'Passed by the Committee on Public Information, Washington', and returned to the owner without further comment. If the picture is not admissible, the print will be marked, 'Not authorized by the Committee on Public Information, Washington'. The use of photographs thus disapproved is prohibited. The duplicate print will be retained as a record by the Committee on Public Information."

E. H. Weston Honored

We are pleased to learn, through the pages of an English contemporary, that one of our California pictorialists, E. H. Weston of Tropico, has recently been honored by being elected a member of the London Salon of Photography. Mr. Weston's success at recent exhibitions, including the London Salon, has been such that he is rapidly achieving an international reputation that must be most gratifying.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Enlarging Accurately To Scale

A. Lockett, writing in the *British Journal of Photography,* says: Although by means of the usual enlarging tables, or by calculating the extra-focal distances, it is easy enough to obtain an enlargement approximately correct to a required number of diameters, it still remains true that perfect accuracy is only attainable by very careful measurement of the projected image and a number of slight trial-and-error adjustments.

Suppose, for instance, one requires an enlargement of three diameters, using a lens of six inches focus, the tables tell us, or we may readily calculate, that the distance from negative to lens must be eight inches, and the distance from the lens to easel twenty-four inches. But when the average worker sets out to measure the shorter distance, or minor conjugate, he is immediately confronted with the difficulty of not knowing from what part of the lens he is to measure. Unless accidentally he hits exactly on the node, which is very unlikely, the minor conjugate will be a trifle too short or too long, and the enlargement accordingly will be more or less than the accurate three diameters. A very slight error in the distance of the lens node from the negative is magnified in the ratio of the enlargement, especially if the lens is of short focus. "But", perhaps someone thinks, "why not set the negative and easel at a distance apart equal to the sum of the two conjugates, and then simply move the lens till the enlargement is in focus?" It may be answered that this method, too, besides being sometimes inconvenient, is not strictly accurate, for it ignores the nodal space of the lens.

Whatever plan is adopted, it usually ends in the same way. Either the worker has to rest content with a tolerably satisfactory approximation to the real size required, or else he must spend a good deal of time and trouble racking the lens very slightly in or out, and correspondingly moving the easel, measuring the projected image till it is found to be the precise size.

For ordinary studio or landscape work there is no need to be unduly particular about the exact ratio of the enlargement. So long as a sufficient proportion of the picture fills up a given size of paper everyone is satisfied. But for some kinds of commercial and technical photography it is frequently essential that enlargements shall be made truly to scale, and a simple rule by which this may be done will no doubt prove useful to many. The writer has worked out a formula which dispenses with any need of troubling about the nodes, or, indeed, of measuring from the lens at all, provided only the focal length of the latter is accurately known.

It is as follows: First focus sharply on the easel, but without stopping down the lens, an enlargement appreciably smaller than the one wanted, and carefully mark the position of the easel, or any portion of its sliding support, on the bench or rails. Measure, also, the length of any object in the enlargement, calling this measurement A. Then, assuming the negative remains as before, the distance the easel will have to be moved away from its marked position for the required enlargement may be ascertained by the following formula:

Let F=focal length of lens,

N=length of any object in the negative,

A=length of same object in the trial enlargement,

B=desired length of object in the actual enlargement.

Then, the easel difference, or distance between the first marked position of the easel and its final position=

$$F \cdot \left(\frac{B-A}{N}\right) - \left(\frac{FN}{A} - \frac{FN}{B}\right)$$

The calculation is quite free from difficulty after it has been worked out once or twice. Here is a typical example: The worker, say, has photographed a stained

glass window, which, in the negative measures two inches wide. From this an enlargement has to be made to show the window eight inches wide, the enlarging objective being of six inches focus.

The negative is projected on the easel till the image is seen to be a few inches smaller than required, and is focused sharply without stopping down. The enlarged window, when measured, turns out to be five inches wide. The data, then, will be: F=six inches; N=two inches; A=five inches, and B=eight inches. Then, by the foregoing formula:

$$6 \times \left(\frac{8-5}{2}\right) - \left(\frac{6 \times 2}{5}\right) - \left(\frac{6 \times 2}{8}\right) -$$

$$6 \times \frac{3}{2} - \left(\frac{12}{5} - \frac{12}{8}\right) -$$

$$9 - \frac{9}{10} =$$

$8\frac{1}{10}$ inches, required easel difference.

Accordingly, by measuring eight and one-tenth inches from the mark indicating the first position of the easel, making a second mark, bringing the easel to the latter, and racking in the lens till the image is in focus, the window will prove accurately eight inches wide.

For those who would like proof, it may be pointed out that with a negative measurement of two inches and an enlargement to five inches, the ratio is two and one-half, and with a six inch focus lens the conjugates will be eight and two-fifths inches from negative to lens and twenty-one inches from lens to easel. This twenty-one inches, then, corresponds to the first mark made for the easel. Similarly, an enlargement to eight inches will mean a ratio of four, and the conjugates in this case will be seven and one-half inches and thirty inches respectively. Substracting seven and one-half inches from eight and two-fifths inches, it is clear that the lens will be moved back nine-tenths inches in focusing the second time; while, as twenty-one inches from thirty inches is nine inches, the second position of the easel will be nine inches minus nine-tenths inches, or eight and one-tenth inches, as calculated by the formula.

It is evident, therefore, that by first accurately determining the ratio of a trial image and marking the position of the easel, without any measurement whatever from the lens, it is possible to make sure of getting enlargements to other ratios with equal correctness, by simple calculation alone, and that the bench or rails may be marked permanently for the purpose. The lantern base should, of course, be fixed, so that the position of the negative remains constant. In the example given, measurements free from fractions have been chosen to make the formula more readily understood, but the method is equally applicable with any measurements. When fractions occur, or are required, it is recommended to work them in decimals, as these are easier to calculate and to measure off.

In a later issue of the same journal the editor comments on the above, and among other things, says: The basis of the method is the attainment of the exact correct distance between negative and easel, focus being secured by racking the lens in and out as necessary. This being the case, it does not matter whether we shift the easel or the negative, though the former is the movement suggested by Mr. Lockett. If the easel is light and easily movable, it can, of course, be shifted readily, but, speaking for ourselves, we favor a heavy easel, not readily moved or disturbed, and we always make adjustments by moving the lantern. A boxwood two-meter scale screwed down to the enlarging bench forms a guide for the lantern and also serves as a means both of recording its exact position and of facilitating its being shifted for a given distance in either direction. Such an arrangement can be just as well utilized in the case of a light movable easel, but the point we wish to emphasize is that it does not matter whether we shift lantern or easel so far as the application of Mr. Lockett's method goes. No complication ensues unless we shift both, and that is a proceeding readily avoided.

Another point is this: Mr. Lockett's trial enlargement is made on a smaller scale than the final one he wishes to effect, but this is not essential. The only effect of making a trial on too big a scale is that, as the result of applying his formula, we get a minus quantity instead of a plus one, which simply means that we have to reduce the distance between negative and easel instead of increasing it. If we wish to produce an equal size print, or to enlarge or reduce only very slightly, it will generally be more convenient

to start with too big a trial enlargement for the sake of greater ease in measuring. We now come to Mr. Lockett's formula, which is as follows: If F = focal length of lens, N = length of any object in the negative, A = length of same object in trial enlargement, and B = desired length of same object in final enlargement, then the difference between the position of easel, or negative, and its correct position for the final exposure is equal to:

$$F \cdot \left(\frac{B-A}{N}\right) - \left(\frac{FN}{A} - \frac{FN}{B}\right)$$

This can be simplified into:

$$F\,(B-A)\left(\frac{I}{N} - \frac{N}{AB}\right)$$

This strikes us as the most useful and simple form, seeing that B — A is determined very readily from the trial enlargement, it being simply the excess or deficit in the length of the image A compared with the length required. This particular form is, however, most convenient when we are desirous of working, not to a particular scale, but to a particular dimension—that is to say, if we want to represent in the final result some object, say, exactly five inches long, or, possibly, a figure five inches high. In such a case we are working to a definite value of B, and it is simplest to keep B in the formula; but if we want to enlarge a certain number of diameters, we are no longer concerned with B, but with the ratio of B to N. If enlarging three times the ratio of B to N will be three, and that is all we need to consider. Suppose we write R for the ratio, the formula simplifies as follows into:

$$F\left\{R + \frac{I}{R} - \left(\frac{A}{N} + \frac{N}{A}\right)\right\}$$

This is another general formula applicable whenever we want to enlarge on a given ratio from a given negative; there is, however, yet another point to consider. Most people find it best to adjust the enlarger with the aid of a special test negative, which is afterwards replaced by the one that is to be used. The test negative being used for all purposes, the value of N in the formula can always be the same; for example, we may mark the test negative with a distance equal to one inch, and so make N equal to unity, in which case the formula simplifies still further to:

$$F\left\{R + \frac{I}{R} - \left(A + \frac{I}{A}\right)\right\}$$

This is a form that can easily be remembered, and is always applicable. If an inch is our unit of N, then A must, of course, be measured in inches, and if a piece of squared paper divided in inches and tenths is put on the easel, the value of A is determined at a glance. We would, however, suggest the use of a special unit in place of one inch. We are not tied to standard units in the case of measuring A, and if we make our unit about, or a little less than, two inches, and rule the easel accordingly, we get a bigger and more convenient scale to work with, while the same unit will serve for all negatives from 4½x6 centimeters upwards. The focal length must, of course, be measured in standard units, inches, centimeters, or what we please.

The application of this formula is extremely simple. The scaled paper on the easel enables us to read off A directly we have secured focus in the trial enlargement, and then we substitute this value for A in the formula, and for R, the ratio of enlargement. The sum of the quantities thus written in the brackets multiplied by the focal length, gives the distance we want.

An interesting special case is when we want to produce, not an enlargement or reduction, but an exact, full-size print. In this case R = 1, and the formula simplifies to:

$$-F\frac{(A-1)^2}{A}$$

But A — 1 is simply the excess or deficit of A over the unit, and can be read directly off the easel. If, then, we write A — 1 = D, we get the very simple formula:

$$-F\frac{D^2}{A}$$

To give an example, suppose we have a five-inch lens, and on first trial get an image that measures one and one-quarter units, then D equals one-fourth and A equals five-fourths, so that the answer is equal in inches to $-5 \times {}^{7}/_{16} \times {}^{4}/_{5} = -{}^{1}/_{4}$. Therefore, we only have to bring the easel and negative one-fourth inch nearer to each other, and then re-focus to get an equal size image. If the trial gives too small an image, say, one measuring four-fifths of the original unit, then D equals one-fifth and A equals four-fifths, and the required adjustment is

$5 \times \frac{1}{25} \times 5 = \frac{1}{4}$ again, this assumed case being similar to the other, but with negative and easel in reversed positions.

It is obvious that we can proceed in exactly the same way with a camera as with an enlarging lantern, provided the camera is one that focuses in front, and this should be an extremely useful application of Mr. Lockett's method. In such a case it would be best to start by putting up on the copying easel a test object with the unit of measurement, an inch or whatever it may be, marked upon it. A trial on this and measuring the image on the screen will give the values of D and A, and then we can adjust by shifting either easel or camera, as convenient, substituting the copy for the test object; refocusing should then give an exactly full-size image.

To sum up, from Mr. Lockett's formula we have derived four separate formulæ, which seem most convenient forms for each of four particular conditions. Thus, the first is suited to enlarging to a particular dimension, the next is better suited to enlarging to a particular number of diameters, the third is still more convenient when we use one special standard test negative for adjusting the apparatus; and, the last fits only the special case of copying full size, an important operation that otherwise involves much trouble.

Animal Photography

Much has been written on the subject of animal photography during the last ten years, particularly the photography of wild animals by the aid of flashlights. But there is another aspect of this subject that will perhaps yield results of greater scientific value, namely, the recording of the varying expressions brought forth by different emotional states. It is now some thirty-five or forty years since Darwin wrote his "Expressions of Emotions in Man and Animals", a book that everyone embarking upon work of this kind should carefully read, but he opened up a field replete with interest and one that the average photographer, possessing a quickly acting shutter, can follow at all times.

Mrs. L. I. Vealy recently dealt with this phase of animal photography at a meeting of the Royal Photographic Society of London, and drew attention to certain precautions and conditions that are essential to success. One of these, is the importance of the personal equation in securing true results. She points out that it is necessary to photograph at the exact instant when the emotion expresses itself in the aspect or face of the animal at its greatest intensity. This requires, on the part of the photographer, an ability to slightly anticipate the growing emotions; as, in the short periods of time involved it can well happen that by waiting until full intensity of expression is reached, the resolution to photograph and the discharge of the shutter may delay until the expression has passed away. Mrs. Vealy says that some people never are able to acquire this ability, this sense, and that all will need some practice in using it. Her own work is done with a Reflex camera giving rapid exposures, that is to say, about one-fiftieth of a second. As we all have cats, dogs, horses and chickens around us, all of them capable of showing expression under emotional strain, there is easily available a most interesting field for those who are weary of the usual thing.—H. D'A. P.

A Note on the Paget Color Process

As is well known, in order to achieve success in making negatives for the Paget color process it is most important that the taking screen and panchromatic negative plate should be in perfect contact. When the dark slide or plateholder is fitted with springs at the back, this is quite an easy matter to ensure, but when they are not so fitted perfect contact becomes a matter of some difficulty. The writer has found that it is a good plan to bind the "taking" screen" and negative plate together at the four corners with scraps of lantern-slide binding strips about a quarter of an inch wide. This also helps in facilitating accurate registration with the viewing screen, and avoiding subsequently overlapping edges of the transparency plate and screen due to the absence of exact parallax. It should be noted that the front edge of the scrap of binding strip, i. e., that over the taking screen, should not lap more than say one-sixteenth of an inch, or part of the picture will be cut off. After exposure it is quite an easy matter to separate the two without damage to either by simply cutting the binding strip through at the edges of the plates with a sharp knife.—R. M. F. in *Amateur Photographer.*

For Local Application

The tools used by those whose work it is to deal with prints, work up negatives, etc., are usually few in number, and the expert needs but few. Nevertheless, there are other things that at times are very useful. One of the great standbys of the photographer is what he calls a "pledget" of cottonwool, which is made to serve sundry purposes, while a thing that is seldom seen in the hands of a photographer is a good sponge, an article that no draughtsman or artist can do without. For getting superfluous moisture off prints nothing is so good as a sponge, for it sucks up water instantly and leaves no hairs behind. It must, however, be the right kind of sponge, soft, and very fine in texture. The artists' colorman is the safest person to get it from. Very minute sponges can also be obtained mounted on handles like brushes, and such a sponge, if mounted in quill instead of metal, is very useful for the local application of a reducer to a print, part of which requires to be reduced right away for vignetting effects. Such small sponges can also be readily made up by tying small pieces of sponge on to sticks or glass rods. Another very useful tool is a Chinese writing pen, which is not a pen at all but a good size and well-made sable brush with a very fine point, and specially stiffened almost up to the point. It is an excellent tool for actual writing and also eminently useful for putting on fine touches of pigment and for washing off the same in minute details. It also is serviceable for spotting when the spots are fairly obvious.—*British Journal of Photography.*

Fine Focusing

In cases where really critical focus is required there is only one method that is really practicable, and that is the one sometimes described as a parallax, and sometimes as a "null" method, in which the only thing looked for is movement of the image relative to a fixed point on the focusing plane. Usually for this method, we are told to use a clear glass screen with some scratches upon it, but recently we have been experimenting with a somewhat less primitive arrangement, with which the extraordinary delicacy of the method was made very evident. The focusing screen consisted of a strip of plate glass with a fine millimeter scale engraved upon it. The object was another coarser scale engraved in black on white, and this was focused so that the two scales were superimposed in the focusing plane. The observations were made through a Stanhope magnifier, which is an excellent thing for the purpose, as it cannot be put out of focus and gives no distortion. Focus upon any particular line was easily secured by a very slight movement of the head, just sufficient to show up any parallax effects if they existed, and focus was only considered satisfactory when an image line showed no trace of movement relative to the two adjoining scale divisions in the focusing screen. The lens used was a good anastigmat, possessing about as flat a field as can well be shown by any actual lens, but wherever the field varied from the absolutely flat condition the fact was rendered evident by movement of the divisions of the focused image. On running the magnifier from end to end of the scale several places could be found where focus was perfect owing to the actual image field intersecting the focusing plane, whereas at intermediate places the focus was distinctly out. These differences could not possibly have been observed on ground-glass or any "fine grain" focusing screen, and probably not in an actual photograph unless it was very considerably enlarged.—*British Journal of Photography.*

Sharp Definition, How Secured

During the discussion which raged a few months ago, even the most impassioned advocates of diffusion did not go so far as to contend that in all cases fine definition was unimportant. We know that it is not so: that whether photography is or is not the best medium to use when pictorial effects are aimed at, the vast majority of the exposures which are made with a camera at all are made with the object of securing as fine definition as the circumstances will allow. All but a very few of the photographs made are made to show things, in other words, to record detail; and the object of what follows is to review the conditions which must be fulfilled in order to get that detail in the print.

As every photographer knows, to obtain a critically sharp picture one must either use a small stop, which is often not possible on account of the lengthened exposure which it entails, or else must have a high quality

lens and skill enough to use it. Stress should be laid upon the need for skill; since so many seem to think that definition is merely a matter of the purchase of an expensive lens. Having bought one, either they learn to use it or they think they have been "had".

The finer the quality of the lens, the more care is required to get a sharp picture with it, since the more trifling is the deviation from the focal-plane which suffices to spoil the beautifully sharp image which it is constructed to give. The character of the surface on which the focusing is done becomes important also: as the definition which a high class anastigmat is capable of giving is very much finer than the grain of ordinary ground-glass.

Various more or less grainless substitutes for the ground-glass focusing screen have been advocated at different times: but after trying a number of them, I have come to the conclusion that none of them are as good for the purpose as that which they are designed to replace, provided the grain of the ground-glass is fine and not, at the same time, too fine. When it is too fine it allows the image to be seen through it, as well as on it, and may become very misleading in consequence. The best way of getting a suitable screen is to make it oneself; it is not a difficult or lengthy operation, and as it has to be done in duplicate, the one job will provide a ground-glass for use and another to put by as a spare.

The materials required are two pieces of patent plate of the size needed, and some flour emery. The use of ordinary knife powder for the grinding gives a screen which is too coarse for fine focusing, but it is possible that knife powder, washed as described below for emery, would suit as well as the latter.

The emery is put into a big bottle with plenty of cold water and well shaken up with it. The bottle is allowed to rest on the table for thirty seconds, not more, and the liquid is then poured out into another tall vessel, taking care not to pour any of the emery which has actually settled down in that time. The liquid is left in the second vessel for a quarter of an hour and is then decanted from the sediment and thrown away. It is this second lot of sediment which is required for the grinding.

Grinding is carried out by placing one of the glasses on a board with a few tacks round it to keep it from shifting about. The heads of the tacks must be below the upper surface of the glass; and the glass should not be on the board when the tacks are driven in, or it will stand a very good chance of getting broken. The wet emery powder is scattered over the glass, the second piece is brought down upon it, and the two are steadily ground together for a few minutes. Heavy pressure is not required. The emery is then rinsed off and the glasses are dried, when it will be seen whether further grinding is necessary. If there are bare spots, emery should be applied to them in particular and the grinding repeated. It does not take very long to give both glasses a very fine ground surface which is of the exact kind required for fine focusing.

Of course, no focusing screen, however fine, is of service, unless it is in exact register with the plates in the dark slides, and where fine focusing is important this should not be taken for granted. Probably the best way of all to check the register is by a photographic test on such a subject as a row of palings taken diagonally. The particular paling on which the focusing is done should be in the middle of the plate, and should be marked. The full aperture of the lens must be used, and a plate exposed. If the paling which is sharpest in the photograph is that one which was focused, the register may be assumed to be correct, but if one a little nearer or the reverse is sharper, then the plate is not in register with the ground-glass, and the latter should be adjusted accordingly.

When focusing it is usual to turn the pinion backwards and forwards, less and less each time until the position is found at which the image is sharpest. If fine definition is of the utmost importance, and the photographer cannot make quite sure when he has got it, there are two or three expedients. One is to rack in the camera until the image is thought to be at its sharpest, and to mark the position then. The camera is defocused, if such a term may be used, and then racked out until the image once more seems sharp, and the point is marked. The actual exposure is made with the focusing adjustment midway between the two marks, if these do not coincide.—P. H. GREATHEAD in *Photography*.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

The Latitude of the Film

I would like to see an experiment, one that I will outline further along, tried by a lot of those workers who seem to have so much trouble because they cannot get the correct exposure on their negatives. Making this experiment they will find that they can, from exposures on the same subject, varying from one-hundredth of a second to one second, secure negatives that will produce good prints by using suitable paper and perhaps altering the time of development. The experiment is as follows: Take an ordinary subject, one that contains about the same degree of contrast as an ordinary landscape, a subject that would require about one-tenth of a second for correct exposure, using stop f-16, or U. S. 16, which is the same thing. The corner of the house with a few trees and shrubs about will answer if not too much shade is in evidence. Make an exposure of one-hundredth of a second, one of one-tenth and another of one second. Develop the first a little longer than normal, the second give normal time of development and the third the same, avoiding any inclination to take it out of the developer too soon just because it seems to be getting too well blackened all over. Then, when they are fixed, washed and dried, take some hard, medium and soft paper and make prints on each grade from all three negatives. The first negative will print with a rather short exposure and the last will require a somewhat longer exposure, but I think one will find that some one of the three papers will give fairly good prints from each of the three negatives. Just which will be the right kind in each case I can hardly say, but the likelihood is that the three will require contrast, medium and soft paper in the order named. You may pick out a more or less contrasty subject than I have in mind, you may select one requiring a longer or shorter correct exposure than the tenth of a second I have indicated, and your developer may be one particularly suited or particularly unsuited to under-exposure, but in any case the three grades of paper should enable you to get fairly good prints from all three negatives. Then, understanding that good prints can be made from negatives varying so widely in exposures, one will be somewhat ashamed to explain, when a print is unsatisfactory, that he did not quite hit the exposure. Knowing that an exposure varying between one-hundredth of a second and one second should make the excuse unnecessary, one can not very gracefully admit that he failed to guess the proper exposure with sufficient accuracy to get within such wide limits. It is quite true that this latitude is not available in all cases. For example, a birds-eye view, such as that of a small town from an elevation, necessitates a rather close approximation to a certain correct exposure. The reason for this is that there is little contrast presented, the intervening atmosphere reducing the scene to one in which no high lights or deep shadows appear except as different shades of gray. The same holds in the work of copying. But in ordinary out-door work there is a latitude in the plate or film that, with the several grades of paper available, makes the matter of losing a picture through wrong exposure hardly excusable.

Using Portrait Film

One of my visitors last week was an old friend who used to drop in quite often for a photographic talk. It seems that he graduated into a small, roll film camera that appealed by reason of its convenience, and then he gradually lost interest through not being able to focus on the ground-glass and do things the way he did when a plate camera was his favorite instrument. Recently he picked up a little plate camera in a second-hand store and had the holders fitted with sheaths so that he could use Eastman portrait film, and he is some en-

thusiast on the subject of these films. A long scale of gradation, a surprising degree of latitude, practically immunity to halation, high speed, and I don't know how many other good qualities he has found. He reminded me that years ago we had discussed the possibility of his stripping all his glass plate negatives so that they could be carried about, with the result that several plans were tried before he finally gave up the idea and turned all except a few of his choicest ones over to the garbage man. Now he is telling himself how he could have kept all these negatives had they only been made on this portrait film which, of course, was not then on the market. Our friend is so enthusiastic that he claims there will be no such thing as glass plates on the market in a few years. He says it is not so much the convenience of the film, but the high quality of the results secured that will be the cause of the change. He prophesies that we will be keeping some of our old glass plate negatives as curiosities, much as we now treasure up examples of the Daguerreotype process.

Trying New Papers

While I certainly do not favor "chopping around" from one paper to another, just to be changing with the hope of finding something better, the plan of a recent visitor, as he outlined it, seems to have merit. When he finds the time and inclination to try a new paper, he mixes up the developer the manufacturer recommends and then prints a few sheets of each grade behind a graduated negative, made by pasting strips of tissue paper of a gradually diminishing length on a sheet of glass in such a way that a number of small squares are produced, with density ranging from clear glass on one corner to a square in the opposite corner that is covered by several thicknesses of the tissue. Trial exposures are made until the proper time is determined, by the fact that a difference is shown between the square under the clear glass and the one next to it, a square protected by but one sheet of the tissue; when a print develops up properly and then seems to stop, as all prints on developing paper will do if the printing time is right. In this way he determines not only the printing time for that particular paper as against the paper he uses regularly, but the graduated squares show him just how long a scale of gradation the paper has, and this is valuable information. Should he wish to use the new paper for a particular negative, he knows just what the right exposure is, as compared with the exposure time of his "standard" paper, the figure for which is marked on the negative at the time of proofing. He is also in a position to select, from the new papers he has tried, one having a long or short scale of gradation, as best suits the results desired. At the same time that the trial is made with the maker's developing formula, the paper is also submitted to the developer ordinarily used. Results are noted on the back of the properly timed strips, and these last are put away for future reference, if wanted.

Grease Marks and Intensification

An Illinois correspondent sends us a film that he intensified by the cromium process, with spotted results. The spots shown on the film seem to be the result of finger marks and their attending grease; these repelling the intensifying solution. What should be done is to go over the surface of the film with a tuft of cotton dipped in dilute ammonia, about twenty drops of strong ammonia to the ounce of water. Do not rub too hard or the film will be damaged.

A Clear Retouching Varnish

W. H. Smith writing in the *British Journal of Photography,* gives the following formula for a quick-drying crystal-clear varnish, which can be applied to either glass or film and takes the pencil readily. It is made by mixing equal parts of a two per cent solution of celluloid in amyl acetate and methylated spirit. A little resin may be dissolved in the mixture in order to give a "bite" to the film, but too much resin renders it fragile and liable to break up. A formula for such varnish containing resin is a mixture of equal parts of the three following: Amylacetate; one per cent. solution of pale resin in acetone; and, one per cent. solution of tough soluble cotton in acetone. For retouching, the varnish can be rubbed on the film or glass with a rotary motion of the finger, stopping when it just becomes tacky, or it can be flowed on in the usual way, the nature of the fluid making this an easy operation even to the inexperienced.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

The Sunshade

It so happens that inherent optical conditions make a lens of large relative aperture more liable to produce flare or lens-halation than one of less speed. Under some conditions practically all of the motion-picture lenses will produce this phenomenon, due to internal reflection. While all types of lenses will not necessarily produce flare under the same conditions, it seems that it is not possible to meet the optical requirements of a lens of large relative aperture and at the same time eliminate danger of flare for all working conditions.

Either stopping down the lens or cutting down the angle of view reduces the effect of flare. In motion-picture work it is, of course, seldom practicable to stop down sufficiently to appreciably reduce the effects of flare. In most cases, however, the danger is almost entirely eliminated by limiting the angle of view of the lens to the rather narrow angle that is actually used in the picture. This is effectively accomplished by means of a tube or barrel mounted in front of the lens.

This tube should be as long as possible without showing in the pitcure when the lens is stopped down as far as it is ever used. Of course, the tube should be concentric with the lens and the inside should be made a dead black, preferably by lining with black velvet or felt, in order to prevent reflections when the source of light is in front of the camera. Some such sunshade is particularly essential with back-lighting or strong cross-lighting with the sun or other source of illumination, in front of the camera. Used without a sunshade, there is perhaps no lens used in motion-picture photography that will not give flare under some conditions.

Essential as the sunshade is, practically none of the motion-picture cameras, as sold, are supplied therewith, despite the fact that the lack of a sunshade may easily ruin the most carefully planned photographic effects. In cases where it is necessary to shoot almost directly into the light, it may even prove of advantage to use a mask or an iris in front of the lens. Such an arrangement not only cuts out the light not actually forming the image, but often improves the pictorial quality of the picture as well. For instance, a back-lighted close-up almost invariably seems to be more effective surrounded by a very diffused iris vignette; on the other hand, such a subject could scarcely be taken without some form of sunshade because of the lens flare that would result.

In case it is not desired to mask off any of the picture space, the following procedure is suggested. Have the barrel or tube that is to form the sunshade made somewhat longer than can be used without cutting into the picture at the corners; for instance, make the length twice the diameter. This, when found exactly concentric to the lens, should, by means of a threaded ring, be permanently fastened to the camera front. This position may be determined before the barrel is cut down to its final length, by first focusing the lens and then stopping down, when the image of the barrel should cut equally into all four corners of the picture. After the barrel has been trimmed down until its image is just barely visible in the corners of the picture when the lens is stopped down to its smallest stop, a final shortening is given. Observation of the effect being secured is best made by pointing the camera toward clear sky. If this procedure is followed, one may be certain that he has the most effective sunshade possible without cutting into the picture, even at smallest lens stops. And, finally, in order to be safe, make the inside of the sunshade a dead black.

Film Standards Recommended

In July, representatives of prominent mechanical manufacturers in the motion-picture industry attended the convention of the So-

ciety of Motion Picture Engineers in Chicago; and, among the activities were the following recommendations of standards:

Frame-line. The line of division between pictures on motion-picture film to be exactly equidistant between perforations.

Film speed. Sixty feet per minute, one foot per second, to be considered a standard rate of movement for film in motion-picture machines.

Picture aperture. The picture aperture in a projector to be 0.906 inches horizontally and 0.6795 vertically. (This, of course, does not mean that the picture aperture in the camera V should not exceed these dimensions.)

Film width. One and three-eighths inches, etc.

Other specifications were recommended, but the significant point is that this representative body of men, closely associated with the development of motion-picture engineering, have formally sanctioned film standards already in quite general use.

We would particularly call attention to the recommendation that the frame-line, or division between individual pictures be exactly half way between perforations. Even if there were no practical reason for this arrangement, the fact that the between-the-perforation frame-line is already almost universal with the largest producing companies, should be sufficient reason for its use on every camera. And there are some very real and practical reasons why the frame-line should be located exactly half way between perforations, aside from the obvious desirability of a standard usage.

Universal Automatic Dissolver

Announcement is made of an automatic dissolver for the Universal motion picture camera, one that is as simple in operation as an ordinary electric wall switch. The operator simply presses a black button at the top of the device to make the picture fade out; and another, the white one, to make the picture reappear. Dream pictures, special halting effects, and the like are all easily achieved; and, with the simplicity and fine workmanship of the device, it should prove very popular with users of the Universal. Illustrated circulars can be obtained from the wholesale distributors, Burke & James, Incorporated, 240 East Ontario Street, Chicago, Illinois.

OUR BOOK SHELVES

"Pictorial Photography"

"Pictorial Photography, Its Principles and Practice", by Paul L. Anderson, E. E., is a new book that should be in the hands of every photographer interested in the pictorial aspect of the work. The book, of over three hundred pages, contains over twenty half-tone illustrations, nearly twice that number of line cuts, and is handsomely bound in cloth. Mr. Anderson, a well known contributor to photographic magazines, has in this book, achieved a most gratifying result by the method employed. While the work is authoritative and technical matters have been treated in a scientific manner, a too strict adherence to technical language has not been permitted to detract from the usefulness of the information imparted. Not only this, but the extremely elementary instructions with which the average book of this character is burdened, has been very sensibly left out. The remarkable part of the work lies in the fact that while Mr. Anderson has a keen appreciation of the pictorial possibilities of photography, he has a clear grasp of the scientific principles upon which the worker must base his efforts if success is to be achieved, knowing that a knowledge of these underlying principles will enable the worker to so command the technique of photography that he may secure the results necessary in the carrying out of

his artistic ideas. Special attention has been given to the intimate relationship existing between the two, with the result that the book is an exceptionally informative one while still being most readable and enjoyable. Published by J. B. Lippincott Company, the book can be obtained through Marsh & Company, 712 Market Street, San Francisco. Price two dollars and fifty cents net.

"Making Money With The Camera"

This is the title of the latest, the July issue, or No. 163 of *The Photo-Miniature*. This is an exceptionally valuable issue of this popular series and should be in the hands of every worker desirous of profiting by the sale of the products of his skill. It gives about a dozen ideas, plans and methods, by any one of which the average amateur or professional can add considerable to his income. We are advised that there is the actual fact or experience behind each idea and plan given, and the assertions made and suggestions given cannot help being of no little value to the photographer who is seeking a market for his work. Copies can be ordered through any dealer, price twenty-five cents, or obtained direct by addressing the publishers: Tennant & Ward, 103 Park Avenue, New York.

A Teacher-Author

Margaret R. Piper, author of the successful Cheerful Books: "Sylvia's Experiment" and "Sylvia of the Hill-Top", hails from the old Bay State; but for the past year she has been a member of the faculty of the Lucy Cobb Institute, Athens, Georgia. Miss Piper's new book, "The House on the Hill", a lively story for young people, will be published on or about May Day, by The Page Company, Boston.

CLUB NEWS AND NOTES

The Wanamaker Exhibition

Again we have the announcement of John Wanamaker, covering the November exhibition at the Wanamaker Store, Philadelphia, in November. The dates are not given, but we believe it is intended for the first two weeks of the month, with entries closing some ten days earlier. While this exhibition is intended for beginners, and in a measure for their vacation pictures, intending competitors will do well to see that the merit of their photographs depends somewhat upon the proper arrangement of the elements of the pictures and the distribution of the light and shadows therein. Artistic merit will not be made the main factor in judging the pictures, but as the consideration of pictorial requirements adds to the interest of any picture, that point should not be entirely overlooked. Intending competitors should write for information concerning this exhibition, addressing their inquiries to the Camera Store, Wanamaker's, Philadelphia.

Photography at the Brooklyn Institute

For its seventh consecutive year, the Department of Photography of the Brooklyn Institute of Arts and Sciences will furnish a course of instruction in the rudiments of photography, the classes meeting each Tuesday evening, from October second, 1917, to April twenty-third, 1918, inclusive. There will also be an advanced class of instruction in Art Photography, the course consisting of twelve sessions, beginning October fourth, 1917, and ending April fourth, 1918. These sessions will be held the first Thursday evening in each month, and on five Saturday afternoons during the term. In addition to the Twenty-eighth Annual Exhibition to be held Saturday, April twenty-seventh, 1918, there will be held, between October fifteenth and April twenty-ninth, eight loan exhibitions; and during the same period there will be held ten demonstrations and three lectures on photography and criticism. The ten demonstrations will form a part of the course of instruction in the rudiments of photography, and in addition there will be four afternoons of field work. The department is well equipped with all the necessary apparatus, together with an excellent studio, located on the fourth floor. The tuition fee for either of the courses is ten dollars for members of the Institute, and four dollars additional for all other persons. A prospectus, giving full particulars, can be secured by addressing: The Department of Photography, Brooklyn Institute of Arts and Sciences, Academy of Music, Brooklyn, New York.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

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Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

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Missouri—J. F. Peters, Room 210, Union Station, St. Louis.

New York—Louis R. Murray, 21 Clark St., Ogdensburg.

Oregon—F. L. Derby, La Fayette.

Texas—Emmett L. Lovett, Roby.

Wisconsin—F. W. Freitag, 500 Monument Square, Racine.

NEW MEMBERS

4384—Paul H. Graf, 29 St. Paul St., Buffalo, N. Y.
4x5, developing papers, of landscapes, local views and general subjects; for anything of interest. Post cards and unmounted prints. Class 1.

4385—Miss Bessie Baumann, P. O. Box 140, Humboldt, Ariz.
3¼x4¼, developing paper, of some scenes of Arizona and Denver, Colorado; for anything of general interest. Class 1.

4386—J. W. Edwall, Box 37, Tillamook, Or. Class 2.

4387—A. George Wehe, Pasco, Wash. Class 2.

4388—Walter Swetnam, Box 86, Whitesburg, Ga.
3½x3½ and 4x5, developing paper, of landscapes, etc.; for the same. Class 1.

RENEWALS

2404—A. E. Fyall, Lower Nicola, B. C., Canada. Class 2.

2984—C. M. Seymour, 1186 Park St., West Hartford, Conn.
3¼x5½ and 5x7 prints, of scenic, City of Washington, D. C., Colorado, local and miscellaneous; for beach scenes, bathers, children, types, portraits or any print with life as predominant feature. Class 1.

3414—F. D. Campbell, M. D., High St.,Coal Grove, Ohio.
Class 2.

CHANGES OF ADDRESS

3385—Charles I. Reid, care Motion Picture Division, Packard Motor Car Company, Detroit, Mich.
(Was Cleveland, Ohio.)

4215—Roy H. Wagner, Box 622, Chadron, Nebr.
(Was Cody, Nebr.)

4308—Mrs. Mabel Meek, Murphy, Or.
(Was Marysvale, Utah.)

4367—Frank P. Bloss, care Postmaster, U. S. S. Saturn, San Francisco, Cal.
(Was Naval Training Station, S. F.)

4371—Homer A. Sanford, Box 1133, Juneau, Alaska.
(Was Skagway, Alaska.)

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

A. Gus Myers, director of the Oregon Camera Club, wants some of our readers to send a formula for "Solitaire",—one that acts quickly.

Pipes don't care who smoke them, these disturbed days. Roy Trine, manager of Woodard, Clarke's photographic department has one that was used at the time of the civil war. It is "some strong".

Still talking war,—Leo. Drossel.

Ray Winters of Multnomah Photo Supply Company, Portland, again got his picture in the paper. Caught a big fish this time.

Waldo Parker of Salem will spend two weeks of September in San Francisco on a vacation.

Miss Edith Hayden, Roseburg, Oregon, attended the Eastman school while at Portland.

Tom Cronise nearly lost his eyesight from the fumes of wood alcohol. Note: Don't get too close.

Clarence Defrese, popular photog of Portland, will motor to Crater Lake for his vacation this year.

Mr. Davies of Davies' Studio, Portland, has just returned from an extended trip East. Mrs. and Miss Davies accompanied him.

George E. Blackford of Iowa has purchased of Claud H. Simson the studio at 53 South First Street, San Jose, and will conduct it as the Blackford Studio.

The New Kroner Print Dryer

On another page will be found an advertisement covering the new model Kroner machines, but a cut will not be available until next month. The manufacturers are quite proud of this new machine, as it has an extra large feed table and is so arranged that the drive is directly from the drum, so that there can be no trouble with the belt. There are, in this new model, no adjusting screws to bother with, the slack of the belts being taken up automatically. The new model is also equipped with a device that absolutely prevents any creeping of the belts, so that the difficulties occasionally found in the operation of this form of print dryer has been entirely overcome. Those interested in a rapid print dryer, and this should mean all photographers making more than a few hundred prints each day, should investigate the merits of this excellent print dryer. Full particulars will be gladly furnished by the manufacturers, The Kroner Photo Print Dryer Company, 323 Meramec Avenue, Clayton Branch, St. Louis, Missouri.

A Full Stock of Autochrome Plates

Those of our readers who are working the beautiful autochrome process will be pleased to learn that the American agent, R. J. Fitzsimons, of 78 Fifth Avenue, New York, now has a full stock of all sizes and can take care of all Fall business. The heavy demand earlier in the season was in excess of the supply and those who were disappointed in getting certain sizes will be glad to know that orders can now be filled without delay. Autumn, with its wealth of coloring, is just the time in which to take up the work and Mr. Fitzsimons will be glad to send catalogue, free upon request, to any of our readers.

Eastman Commercial Film

Announcement of the new Eastman Commercial Film will be of special interest to the many commercial photographers who have found Portrait Film a decided advantage, convenience and economy in much of their work, but it should also be of general interest. Commercial Film has about the same speed as the Seed 23 plate, and may be used for the same classes of work. Its contrast is between that of Portrait and Process film, and it will be found especially useful in copying and all similar classes of work requiring slightly higher contrasts than can be secured with faster emulsions.

There is an advantage in the slow emulsion due to the latitude in handling. While the maximum contrast is high, a low contrast can be secured with less than normal development, and if exposure has been short, development can be forced to a higher contrast without fogging than is possible with faster emulsions.

Aside from its special advantages as a slow, contrasty, fine-grained film for copying or making positives from which duplicate negatives are to be made, it has the same non-halation properties as all film and the same physical advantages of lightness, compactness, flexibility, etc. These advantages are great when a considerable number of valuable negatives or positives must be stored and guarded against breakage, etc.

Bird Pictures Wanted

For such photographs of birds as it can use, the *Blue Bird Magazine* pays ten cents each for 3½x4 and twenty-five cents each for 4x7 size. These pictures must be clear and good. In all cases sufficient return postage must accompany photographs, with name and address distinctly written, otherwise the editors will not be responsible for them. For any further information address Editor, Blue Bird, 1010 Euclid Avenue, Cleveland, Ohio.

Infallible Tinting Masks

There has just been issued a new catalogue describing and illustrating the numerous designs of the Infallible Tinting Masks. Copies will gladly be sent to any of our readers upon request to the Presto Manufacturing Company, 5910 Baum Boulevard, Pittsburg, Pennsylvania.

Some Photographs Wanted

Mr. Blanchard, who, our readers will remember as the author of some very interesting articles on the production and sale of photographic illustrations that appeared in our pages some months ago, advises that he is in need of several dozen extra good photographs of pretty girls, girl's heads, sheep by a stream or lake, horses similarly located, and he is particularly desirous of securing a good photograph of a pretty girl and a horse's head. These, in addition to being interesting and attractive pictures, must be sharp and clear, printed on glossy paper, and if the original negative is smaller than 5x7 they should be enlarged to 8x10 size. If return postage is enclosed, all unavailable prints will be promptly returned. In sending prints advise Mr. Blanchard of the price wanted for each negative; or, if you wish, he will advise as to their value to him. In case the picture suits his purpose he will require of any person shown therein, written consent for publication of the picture. Suitable blanks will be sent for this purpose. These photographs are needed at once, and those of our readers who may be in a position to supply them should communicate with Harry F. Blanchard, 65 Hudson Street, South Glens Falls, New York.

Illinois College of Photography

Feeling that she should "do her bit", Miss Elsie Shay of Sterling, Colorado, and a student of 1915, has entered Red Cross work as a nurse. At present it is not known where she will be located.

C. D. Gallagher of Ely, Nevada, a former I. C. P. instructor, was recently chosen vice-president of the Inter-Mountain Photographers' Association. The association includes in its membership photographers from Utah, Wyoming, Idaho, Colorado and Nevada.

President Bissell attended the Thirteenth Annual National Advertisers' Convention at St. Louis, last month. He is a member of the association and recommends every photographer becoming one. By attending the conventions one is able to get a great many valuable ideas that would add to his studio business. Next convention will be held in San Francisco.

In furtherance of a safe and sane Fourth, the students of both schools have decided to hold a picnic at Lake Kanagga, west of the city. They are planning to arrive there early enough for breakfast, and (if their enthusiasm does not wane before) will remain until after the evening meal. All kinds of sports will be indulged in and a fine time is anticipated.

Professor and Mrs. C. J. Killen and daughter have just returned from quite a lengthy automobile tour of the Eastern States. Their trip carried them as far east as Massachusetts, and the total distance traveled was something over twenty-five hundred miles. Mr. Killen says they were in all kinds of weather, from sunshine to a tornado; the journey, however, was, as a whole, a very enjoyable one.

XIV No. 10 OCTOBER, 1917 Price, 10 Cents

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A Photographic Monthly

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Flashlight Pictures

AT this season the advantages of the flashlight are quite apparent and the photographer, both amateur and professional, should make full use of the power thus placed at his disposal.

Lamps that are right and powder that is fresh are stocked by us in large assortment. Use them and you'll be pleased with the results.

HIRSCH & KAISER

218 POST STREET SAN FRANCISCO

GLOBE BEARER
By MARCIA PEARSON

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY
FAYETTE J. CLUTE, Editor
CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV OCTOBER, 1917 No. 10

The English Pictures at the C. C. C.

By James N. Doolittle

With Reproductions of Some of the Pictures

Visitors at the Fifth Annual Salon of the California Camera Club, held in the Palace Hotel last November, will recall that two spacious screens were reserved for a collection of prints that was expected from England, but which failed to arrive in time to be shown. The exigency of war at last permitting the arrival of these pictures in San Francisco, nearly seven months later, the Camera Club placed them on view in its galleries.

Thanks to the kindly efforts and interests of Mr. Mortimer, who assembled this excellent collection, we are afforded an opportunity of enjoying an exhibition of some fifty or more London Salon pictures, the work of nineteen of the prominent pictorialists of London. These come to us, in our isolation from exhibition centers, as a rare treat, one having a value that can hardly be over-estimated.

Briefly, the collection shows little or nothing that is particularly new, which is another way of saying that there has been no straining for effect. The work is sound and conservative, very much English, as befits these serious times. Perhaps this of itself is a blessing; for, if we must be forever looking for that which is new, pray break it to us gently. Calling to mind the works of certain of our new school adherents, our prayer becomes more fervent. Why must we, with our art still in its infancy, give heed to the demand of something new? Have we not been doing just that thing? If what we have tried to do is not entirely new, it has been as if we were trying to present that which is old in an entirely new way; and while so doing may not mean for success, it results in progress. So let us, for a time at least, continue in our present course. And,

when the change comes, as it must, and as it has in times past, let it come gradually, so that we may not be greeted at every turn with the query: "Has art gone mad?"

Perhaps the sole examples of the "new" tendencies are displayed in the two prints by Ward Muir. His "City of a Billion Windows", a New York "landscape", breathes of the abstract; while his "Lake District Landscape" is a study in design. The former, on account of the selected viewpoint, commands more than passing attention. The man on the street does not see these every-day scenes from so high an altitude. Mr. Muir's other two prints are ordinary landscapes of ordinary treatment.

The strength of the collection lies, in no small part, in six superb examples of Mr. Mortimer's art, and four of no lesser merit by Marcus Adams. The work of Mr. Mortimer, as is well known, is largely marine, all except one of his six being of topical interest, bearing on the great war. His "Trail of the Hun" is not only powerful, pictorially considered, but carries a thought that is not destined to shed credit upon the submarine activities of our common enemy. The four figures in the life-boat are watching the masts of their ship, as they gradually sink beneath the waves. Their faces are turned from us, but the note of mingled sadness and anger is far from being lost.

The "controlled" processes are not strongly represented in the collection, and the gum worker would save himself much labor, perhaps, would Mr. Adams but divulge the secret of the pleasing sketchiness which characterizes his work. The former is seeking effects that Mr. Adams secures without departing from mere bromide. Moreover, Mr. Adams could no doubt make two, or two hundred prints, identical in quality; which, while we are aware that quality, not quantity, is important, would be difficult of accomplishment by the gum process. "The Lesson" is, perhaps, the most interesting of his group.

That the soft-focus lens has not found favor abroad seems evident from a review of these prints, there being not a single example of work done with this type of objective. Softness there is in nearly every print, the English pictorialist having a strong dislike for needle-sharp effects, but the softness he secures is a pleasing quality imparted, in most cases, by what appears to be great enlargement from small negatives or by the employment of rough-surface papers. In considering the media, two prints of decided interest are those of John H. Anderson, "His Snow Scene" and "Street Scene in Falise", are small prints done in warm black by the oil transfer or photogravure process, just which it matters not, except to the artist himself, for, while they are not lacking in strong pictorial quality, they are beautiful in both tone and texture.

A. H. Blake exhibits two bromides, of which "Seaford Head" is perhaps the better. "Afterglow—London", is a scene at nightfall in rather too low a tone to give the necessary strength to a rather interesting foreground. "In the Studio", by E. T. Holding, we consider the better of this artist's two prints. His portrait of Herbert Nye is pleasing and delicately rendered in a high key.

An example of skilful reflex work is shown in Marcia Pearson's "Dancer", a no less skilfully remodeled damsel being caught in mid-air in a more or less graceful attitude. The "Globe Bearer", by the same artist, however, is one

TRAIL OF THE HUN — By F. J. MORTIMER

of the strong things in this collection. Classic in conception and simple in composition, it is a strong testimonial to her ability as an artist.

"In a West Coast Harbor", is the better of two contributions by W. Thomas. His "Golden Green" is a landscape with pleasing distances, although not particularly strong in pictorial quality. In separating the landscapes from the others, the work of Hector Murchison and Alex Keighley demand particular mention. To merely say something complimentary regarding the work of these two well known artists would accrue nothing more to their credit; to criticize is only for those better qualified than ourselves, and to indulge in superlatives is merely tabulating adjectives. Although Mr. Murchison's only landscape, "By the Lock Side", is a study in line and masses, "The Gantry" and "Robertson's Close—Edinburgh", are no less strong in pictorial values.

Mr. Keighley's "The Lost Lamb", is a landscape that tells a story. Know his work, read the title,—there lies the story. John H. Anderson shows but one print that, if we may be pardoned the comment, would be the better for judicious trimming.

Taken side by side as they appear on the walls, Hugh Cecil's "Grief" suffers by comparison with his other two that are better. To attempt a dissertation

on the nude in photography would be but a revival of a much discussed subject, too broad in itself to find room within the scope of this article. Candidly, the title is more fitting to the attempt than the subject. His portrait of Dennis Eadie, however, is of such good quality that we may pass the others lightly by. To mention his printing medium is a mere technical detail, but somehow it helps to make an interesting portrait of an interesting person the more enjoyable.

"The Hay Cart", by James M. Kissack, is perhaps the better of his two

THE LESSON By MARCUS ADAMS

DENNIS EADIE By HUGH CECIL

subjects. "Sterling Castle" suffering for want of separation of planes. Perhaps our point of view is faulty, but that ancient landmark is made to appear above, not beyond, the farm buildings in the immediate foreground.

A group of six platinums, by Frederick H. Evans, divides our attention between enjoyment of superb examples of architectural photography and repellant thoughts incident to the war and the destruction, in the name of war, of those monuments to God and art—The Cathedrals of France. To be sure, he shows but one picture of Rheims, but that is sufficient. We understand that as subject matter, cathedral interiors are becoming a bit hackneyed, but interior of "Chartres" is a masterful piece of technical work, combining all the rich values of platinum and qualities of the engraving.

"Excavations at Thebes", has furnished material for powerful subject-matter, which the Earl of Carnarvon has ably translated in his "Dust of Ages". This is another of the "big" things of the show. Masterful in execution, it is rich in the feeling and atmosphere which the title suggests. His choice of

medium is most fortunate, for by no other than the oil process could this theme have been so successfully interpreted.

Eight portraits are the work of Mrs. G. A. Barton, Walter Bennington and Bertram Park, of which Mr. Bennington's portrait of Louis Raemakers is easily the best. To thus discriminate is somewhat awkward, but it seems to us that this subject combines the qualities of a good portrait with those of real pictorial merit. Mr. Park's four are beautiful examples of portraiture, but aside

DUST OF AGES By THE EARL OF CARNARVON

from the happy choice of subjects, they belong to the realm of the portrait, rather than the pictorial photographer. Recent governmental regulations restricting the use of cameras out-of-doors is no doubt responsible for the employment of sundry bric-a-brac as subject-matter for the one example of "Still Life". A reason there must have been, although the high cost of photographic supplies would deter us from this class of work.

Of the two prints by Mrs. G. A. Barton, "Lavine—The Gleaner", has the stronger appeal. From examples of her work that have been reproduced for several years past, we take it that the making use of "natural" settings for her portraits is more or less characteristic of this artist. We have in mind her "Last Rose of Summer", in which the rose bower was particularly necessary in carrying out her theme. Out-of-door portraiture offers opportunities for expression not to be found within the too-often dismal confines of our studio workshops. In no one instance have we observed a worker adhering so closely

to one "style", and yet exhibiting the versatility shown Mrs. Barton's pictures.

With apologies to all concerned, we are emboldened to offer a word or two in somewhat more severe criticism; for, although we may find many points of disagreement, he is rich indeed in his own conceit who cannot find something worthy,—something from which he may draw example, in the least appealing works. The matter of mounting seeems to us, in nearly every case, to do an injustice to the picture and its producer. Some, resorting to multiple mounts, made them, in some cases, either too delicate or too flimsy to properly support the heavier prints. Others essayed hand-wrought designs about the margins, and a few were even more indifferent to a harmonious method of displaying their excellent subjects.

Necessarily, somehow, all great works invoke criticism, and while we seem in the mood to say something unpleasant, let us by all means direct it at the mounts; and, while in a critical frame of mind, take occasion to state a principle with which we have been more or less well satisfied: A mount that will always harmonize with the print is one which most nearly resembles in tone and texture the stock upon which the emulsion is coated. A mount so selected will provide the maximum enhancement to the subject without, of itself, forming a too important part of the display. This really sounds reasonable when we reflect that etchings or engravings, which photographs by their nature somewhat closely resemble, are never displayed upon sheets of tissue and vari-colored supports. Here we stop, however, ere the "Me—und—Gott" attitude, attributed to one W. Hohenzollern, seems too closely approached; for, after all, we have taken it upon ourselves to criticize the works of men and women, some of whom were artists when we, with difficulty, were striving to master the A-B-C's of photography.

LAVINE—THE GLEANER
By MRS. G. A. BARTON

CHARTRES
By FREDERICK H. EVANS

THE LOST LAMB — By ALEX KEIGHLEY

We close, therefore, with praise for the sterling quality of the pictures shown and with thanks to those who, amid these troublous times, do not neglect an opportunity to devote themselves to matters of art. This group of prints, we understand, is to compose a traveling loan exhibition, to be shown next at Sacramento, under the direction of John Paul Edwards, and thereafter in Eastern cities, wherever it will be assured proper display. The California Camera Club harbors a sense of pride in being the first to receive this representation from abroad; offered, as it was, in a generous spirit of co-operation.

Art Eternal

Not her heroes, but art, made Greece immortal. Shakespeare is worth more to the glory of England than all the victories which he has sung; nay, not to England only is he of greater worth, but to mankind. Dante, Raphael, and Michael Angelo, with many other names of highest power, have made Italy the consecrated land of poetry and song, the home of beauty and of all loveliness—the native country of the soul.

It is only when we look at art through the purifying and chastening light of time that we fully realize its influence in the history of the human race. The present is always vulgar, loud, glaring and shameless; too real to be beautiful. It is the slave of power and wealth, soiled by the idolatry of success, the hideous counterfeit of merit; but this passes and art remains forever.—SPALDING.

Experience Versus Conceit

By C. Y. Halsey

With Illustrations by the Author

Twenty-five years ago I bought my first camera, a Vive, carrying twelve 4¼x4¼ plates in a magazine at the back. This last was operated by thrusting one's hand through a sleeve, and pulling the exposed plate up and to the rear, so that the next one came into position ready for exposure. This, of course, necessitated plates with an opaque backing, so that when the one in front was exposed, the light did not reach the others behind it in the magazine. My first subjects were two children, next-door neighbors of mine; and, by accident, a good picture was secured. The parents ordered a dozen Solio prints, mounted, for which I received one dollar and twenty-five cents. The remuneration was not great, but the conceit that I acquired when I found that I could so easily make pictures that had a commercial value, was quite extensive. Varying success attended my future efforts, but my stock of conceit increased rather than diminished.

The No. 2 Brownie then came on the market, and as it looked much easier to operate, I invested in one. About the first work done with it was six interiors of the factory where I was employed, and these found their way into the company's catalogue. No remuneration worth mentioning, but a decided addition to my conceit. In order to properly exercise my wonderful ability as a photographer, a larger and more complicated camera was necessary, and a 5x7 Corona was my next investment. This was just prior to the destruction of the Corona factory by fire.

With the problem of focusing, selecting the right stop and shutter speed, came spoiled plates, but my conceit explained the entire difficulty. The camera was certainly no good. Here the Premograph came on the scene; and, being usable as a fixed-focus camera, yet similar in focusing to a Graflex or other reflecting camera, I made some more good pictures. I was, however, spending money without any revenue coming in. To cut down the expense the Premograph was sold and a little Expo Watch camera took its place. While the photographic fever remained at its normal height, the expense was made much lighter, and I could gratify my taste for photography without approaching bankruptcy as closely as I had been doing.

Moving to Alameda, I discovered that the majority of the young ladies who found pleasure in visiting the bathing beaches were not at all adverse to being photographed. I hied myself to a pawn-shop and invested five dollars in a 4x5 Premo, equipped with an ordinary rapid rectilinear lens. This camera produced many fine pictures for me, but I soon discovered that a 5x7 plate would, with a shield in the back of the camera, give me two post card negatives. I sold the Premo for nine dollars and bought a 5x7 view camera, fitted with a six and a quarter inches rapid rectilinear lens.

SHE CAN'T HELP IT; HER NAME IS GRACE

This cut my expenses almost in half, but I gradually awoke to the fact that a short focus lens is inclined to give objectionable distortion in figure studies, although at the time that I purchased the outfit, I thought, in my conceit, that there was no one in the Eastman factory who knew as much about the camera as I did. All I needed was the formula sheet in the boxes and on the bottles. I had no use for an exposure meter, and other helps, and did not know what a photographic magazine looked like, but I have since found that all these things are of assistance, particularly a good photographic magazine. Originally, after purchasing the current issue of CAMERA CRAFT, as I often did, I scanned the pages and then tossed it aside. Since then I have bought many of the old issues at the second-hand book stores, and found every number of great

THIS WAY, THAT WAY, AND THE OTHER WAY

value, especially when I wanted to check up on some formula or experiment to be tried out.

Living near the beach I was enabled, when necessary, to promise delivery of finished post cards within half an hour, and much of my work was done on this basis. I charged twenty-five cents for three of the cards, and found no difficulty in selling a large number of them at this price; and, re-orders were surprisingly numerous. This quick delivery did not permit of more than a good rinsing of the negatives, but all of the best ones were saved and given a thorough washing after the three or six prints ordered had been made.

Feeling that keeping down the cost of production was the important thing, I settled down to Stanley plates, pyro developer, and Azo paper, using the E Hard X almost exclusively. My best negatives seemed to be those given a quick bulb exposure, using stop U. S. 128. Bulb exposures, however, gave irregular timed plates, negatives lacking uniformity, and resultant prints that were not the best in the world. The light reflected from the sand is both deceptive, as well as trying, while faces and figures silhouetted against the brilliant water and sky produce other complications; but my conceit took care of all that, I thought I was doing some fine work.

Finding that but few of my subjects objected thereto, I had no hesitancy in disposing of duplicate prints throughout the interior and in the East, where such subjects are somewhat of a novelty. Whenever I thought that there was any possibility of my customer finding fault with my so doing, I asked if they had any objection to the pictures being furnished to other parties, and explained that they might be desired for newspaper or magazine publication. Very seldom was any objection made, and then only in the form of my assurance that no improper use would be made of them. Many of the original negatives I have sold for from one to two dollars each, making and retaining a positive plate, in case duplicate prints or negatives were required. These last I have sold for from twenty-five to fifty cents each, with the result that about one hundred negatives netted me, over cost of production and material, nearly two hundred dollars in a few months.

Then a syndicate built the large, modern, bathing beach in Alameda, that is now so popular, and the opening of the season found much interest being taken in the announcement of the Bathing Girl Review, an event in which some thirty or forty girls, handsomely costumed by some of the manufacturers of bathing suits, disported themselves in the season's latest styles. In this, the well trained and shapely models paraded before the vast audience, affording fine targets for cameras fortunate enough to be at hand. Here was an opportunity for my camera that rivaled the Exposition; but how was I, a simple amateur, to get the bathing girls to pose for me? Conceit? No, never!

I had only my old 5x7 camera; but, due to damage by heat through using it in my enlarger, the original lens had been replaced by a Wollensak Verser, working at f-6, which I had purchased, second hand, from Lasky's, for only ten dollars. The back of my camera I had refitted so that it would use either 5x7 plates or a 3¼x5½ film pack. Since the previous year's failures and successes I had used an exposure meter continually, finding it conducive to uniformly

A PLEASING AS WELL AS A WILLING SUBJECT

good negatives. My membership in the I. P. A. print exchange brought me one on trial, and it was kept and paid for. I had, by its use, found that with the Kodak Speed Film, the average portrait on the sand, in good summer light, is best given one-fifth second at f-45. The resultant negatives have good detail and yet do not require a great amount of retouching, if any. I am now using a Kodelon-Hydroquinone developer for my film, which gives me nice, soft prints. I was certainly well equipped for business, as far as photographic apparatus was concerned, and my stock of conceit was as great as ever.

The band was playing, the girls were preparing to pass in review, and photographers for the Mutual Weekly, Pathe, and others, together with the

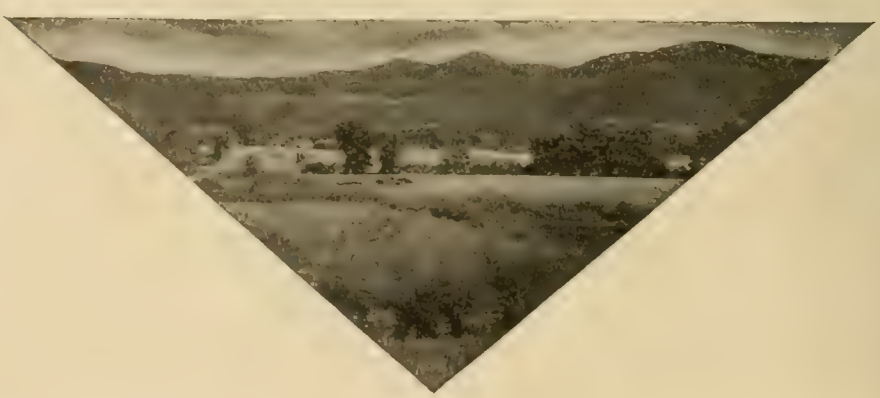
HERE'S THE CAMERA MAN. LET'S ACT FUNNY

usual complement of press photographers, were ranged along the edge of the stage. In addition, about a hundred amateurs, equipped with all kinds of cameras, were crowded in wherever possible, eager for an opportunity. My nerve took me to a good point of vantage up on the platform; and, as the girls passed in review, they came over my way and walked before my camera, one by one, in order to be photographed. Some ten thousand people were looking on, and no doubt many of them thought I was a genuine specimen of the "photographic bug", but I cared little for this. I had obtained what I was after, a new line of merchandise that I knew I could easily sell. I secured the names and addresses of practically all of the bathers in the review, and mailed each one of them a finished print, quoting a price per dozen for further copies. I also printed up a number from each negative and immediately placed them on sale in the local stores.

Securing good pictures of the professional models is easy, as they know how to pose properly, but the amateur models require a great deal of attention if good results are to be achieved. My plan is to have the head tilted a little downward and to one side, with the eyes coyly directed upward at the operator as he stands beside the camera. This and one or two other simple poses that I learned from the professional models are catchy and generally quite favorable to the subject. Back among the shrubbery a slightly longer exposure is required, due to the absence of reflected light from the sand and water.

The good results I have achieved secured for me the work of making all the "stills" required by the moving-picture firm now located at this beach resort, a side line affording both pleasure and profit. My prices for special work measures up with that of the professional photographer, and I find my spare time from my evening occupation, fully occupied. Today my conceit is less than it was, although perhaps my nerve is somewhat increased; but the main point is that I am enjoying my photographic work as much as ever, and am making it pay me a revenue that it did not do before.

To produce beautiful works, the sole condition necessary is that which the great Goethe indicated; fill your mind and heart, however large, with the ideas and sentiments of your age, and the work will follow.—H. TAINE.

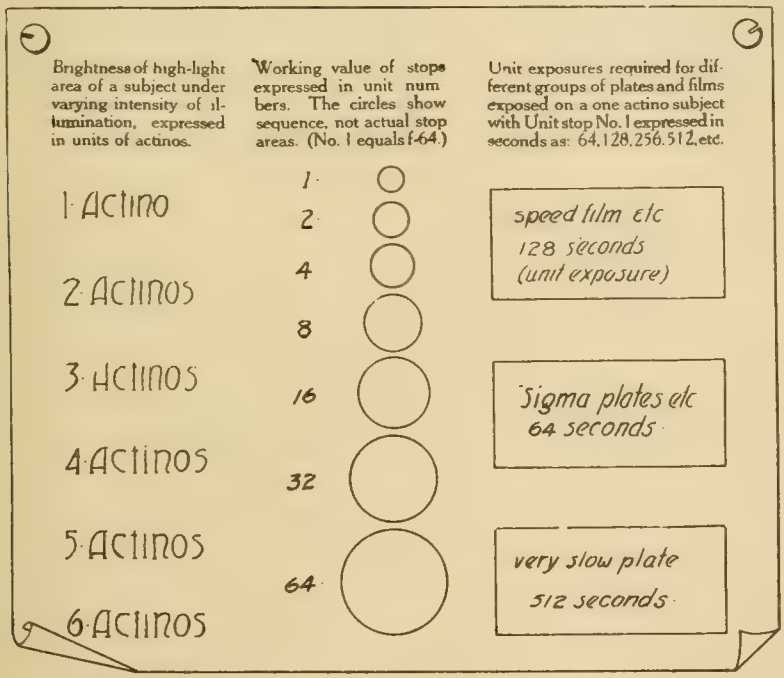


The Application of Unit Photography

By F. Morris Steadman

With Illustration by the Author

As explained in my last article, Unit Photography is based on a unit intensity of light or brightness, this unit being the actino. In speaking on Unit Photography before classes in physics, I find I can make this clear by using a simple diagram, one that I believe might also be of interest in this connection. In this diagram, reproduced herewith, the left hand column represents the brightness of a series of small areas in the high-light section of subjects that vary in the


Brightness of high-light area of a subject under varying intensity of illumination, expressed in units of actinos.
Working value of stops expressed in unit numbers. The circles show sequence, not actual stop areas. (No. 1 equals f-64.)
Unit exposures required for different groups of plates and films exposed on a one actino subject with Unit stop No. 1 expressed in seconds as: 64, 128, 256, 512, etc.
1 Actino
2 Actinos
3 Actinos
4 Actinos
5 Actinos
6 Actinos
1
2
4
8
16
32
64
speed film etc
128 seconds
(unit exposure)
Sigma plates etc
64 seconds
very slow plate
512 seconds

intensity of their illumination. It is assumed that the first subject has unit brightness, the next below a brightness of two units or actinos, followed by those of four, eight, sixteen and thirty-two units respectively. It is readily understood, even with no precise knowledge as to the definition of the unit, that a subject rated as two is twice as intense as another rated as one, one rated four being four times as bright, and so on. Without a single exception, the students before whom this chart was placed, comprehended fully the use of the numbers as pure value expressions to be employed exactly as are numbers intended to express distance, weight, area, volume, etc. Such use of numbers is always quite simple, requiring only "common sense", as it is called; no special or arbi-

trary method is required, only the simplest and purest value conception being involved.

The second column is made up of a series of circles representing lens stops. These show the sequence of numbering and not actual stop areas. In my demonstration I invariably draw these circles without numbering them, and then say to the class: "I might wish to refer later to these different openings by number; how should they be numbered?" I have asked this question of some four hundred students and without a single exception the answer has come back instantly, as the result of the simple reasoning mentioned above: "The smallest one should be number one." As already explained, the second circle in the series is equal in area, and therefore in light admitting value, to two of the smallest ones, each succeeding opening admitting twice the light of the preceding smaller one. Invariably I have been told to number them 1, 2, 4, etc., in geometrical progression, as in the diagram.

How important in simplifying photography is this practically intuitive idea of relative values that seems to come from even the child's mind without hesitation or confusion. Of two things doing work, with one having double the working capacity of the other, it quite obviously takes a number twice as large to express the value of the latter. If the lesser value is one, then the value of the other must be two; if the value of the former is four, then that of the greater must be eight, and so on. The mind does not question such a plain and evident truth. Even in the child's mind, this conception of value is readily employed without even questioning the nature of the work done by the light passing through the different openings, or the relation of the diameter of the opening to the focus of the lens, or kindred details that the wise ones give so much importance through the use of f- numbers for the stops and other devices. In computing exposures for different stops; that is, in thinking out our exposure problems, the one essential thing to know is the working value of the different stops involved. This is the one basic truth, a truth instantly appreciated and accepted. My auditors grasp this truth, and accept it on this basis alone; and, without knowing or questioning the action of light, work out exposure problems with a perfect understanding of the value relations involved therein.

Let me illustrate in a simple manner just what I mean: Suppose that the reader does not understand Spanish, but is told that one "vara" of a certain cloth costs forty cents; he, without knowing the nature of the "vara", understands at once that two such quantities of cloth would cost two times forty or eighty cents. Again: Is it at all essential in order to appreciate time and to use a watch correctly that one understand the nature and movement of the earth on its orbit as does the astronomer from whose understanding of truths the method of counting time has been occasionally altered during the past? By no means. The sense of values is one of the simplest with which we are endowed; and, it is invariably a surprise to my young hearers to be told that no lenses are made with stops numbered as they themselves have correctly told me stops should be numbered. This, of course, excepts those stops that I have had so numbered for use in the practice of Unit Photography.

Those of you who are wedded to the f- system of stop numbers should

UNIT EXPOSURE FOR STOP USED, EIGHT SECONDS. SUBJECT BRIGHTNESS, FOUR ACTINOS. 8 ÷ 4 = 2 SECONDS EXPOSURE

ask yourselves: "Would I think of the f- numbers or of the value numbers in determining the exposure required with f-8, if I knew that stop f-16 requires thirty-two seconds exposure for the same subject?" Eight seconds is of course the answer, but how did you go about its determination? Did you say to yourself that the exposure is in direct relation to the squares of the f- numbers; the square sixteen and eight, getting two hundred and fifty-six and sixty-four; and finally, say that as two hundred and fifty-six is to sixty-four as thirty-two is to eight? You certainly did nothing of the kind. You simply used your knowledge of the fact that f-8 has four times the working value of f-16, and for that simple reason, and no other, the exposure would be one-fourth of thirty-two seconds or eight seconds. It is obvious that the basically important thing is simply the working value relation between the two stops, which relation is one to four. Using these value relations, the four is used, mathematically, to divide the thirty-two seconds, and the answer is found by the simplest and most direct reasoning from cause to effect, reasoning so simple that a child would not hesitate in applying it to the problem. It is equally plain that the stops should be given these value numbers, just as the circles in the diagram are given them by the unanimous opinion of every student to whom the matter is presented. A knowledge of the theory on which is based the value of the stops can well wait, since the use of the stops and the exercise of the value conception in computing exposure problems does not depend upon that theory but upon their working values alone.

The f- number is one that describes the form of a light cone, so that to say f-8 should convey the same mental picture of form as to say that the altitude of the cone is eight. The cone may be one of light or one of green cheese, but if it be bisected at any point, the length of the resultant cone will be eight times the diameter of its base. It is true that from the f- numbers their working

value may be computed, or rather, are known; but it is this working value that is basic in computations, and it is these value numbers that should be employed to designate the stops.

The column at the extreme right of the diagram gives the exposures required for plates and film of different speeds, when photographing subjects having unit brightness, with the unit stop. These unit speed exposures were determined as follows: The three parallelograms were used to typify three plates or films of different speeds, and the explanation made, that, by a number of carefully made practical tests, I had found that the first or upper one was correctly exposed when it received one hundred and twenty-eight seconds exposure. Then, explaining that the second or next lower has been found to be twice as fast working as the first, I ask how many seconds would expose it properly. The answer is immediately forthcoming: "Half as long, or sixty-four seconds." To extend the application of the idea, I say that the third or last plate is four times slower working than the first; and, in reply to my request for its exposure time, I am at once told that it must have four times one hundred and twenty-eight seconds or five hundred and twelve seconds.

This diagram, therefore, sets before us the three main factors of exposure; the brightness of the subject expressed in value numbers, the lens stop also expressed in value numbers, and the speed of the plate expressed in the time required by it to photograph the unit brightness subject with the unit stop. These last, the different unit exposures, suffice to give one a perfect idea of the different plate speeds. Taking the top plate, the one requiring the unit exposure of one hundred and twenty-eight seconds, but varying the brightness of the subject and the working value of the stop, I ask: "If this plate requires, with the unit stop, one hundred and twenty-eight seconds to photograph normally a subject of unit brightness, how long will it require to take a subject that has four units of brightness, or that is four times as bright. The answer is invariably something like this: "If a unit brightness subject requires one hundred and twenty-eight seconds, a four-unit brightness subject will require one-fourth of one hundred and twenty-eight seconds or thirty-two seconds." Again varying the stop I ask: "If, under these conditions, thirty-two seconds is required with the one-unit stop, how many seconds would be required with the sixteen-unit stop?" The answer comes: "One-sixteenth of thirty-two seconds or two seconds." It is evident that one can take either of the plates, a subject with any brightness and such stop as may be thought best; and, in resolving the problem, the only difference will be in the figures employed, the reasoning being the same in each case.

The actual exposure that the new fast film requires for a subject of one actino brightness is shown in the lower line of the following table:

F- System of Stops.....	f-64	f-45	f-32	f-22.5	f-16	f-11.3	f-8	f-5.6	f-4.5
U. S. System of Stops.....	256	128	64	32	16	8	4	2	1⅛
Exposure in Seconds.....	128	64	32	16	8	4	2	1	⅝

Knowing the exposure for each stop, for a subject having one actino of brightness, as shown in the lower line, if the subject measures in its high-light area, two actinos, half the time will be required, if four actinos, one-fourth the

UNIT EXPOSURE FOR STOP USED, SIXTEEN SECONDS. SUBJECT BRIGHTNESS, FOUR ACTINOS. 16 ÷ 4 = 4 SECONDS EXPOSURE

time, if thirty-two actinos, one-thirty-second of the time, and so on. One simply divides the unit exposure for the stop used by the brightness of the highlights of the subject in actinos, as determined by either the Aabameter or the meter I have described. The fastest plates, those of the Sigma class, require only one-half the time shown in the table, or sixty-four seconds exposure on a subject of unit brightness, using the unit stop. This last, I might explain, admits a cone equal to one-thirty-two-thousandths of a hemisphere, as does f-64 and U. S. 256 in those two systems of stop markings. Still other plates and films require double the exposure time of the above table, under the same unit conditions. If a plate given eight seconds exposure is found to be really under-timed, an increase of twenty-five per cent, or ten seconds, would be insufficient to correct the error. The exposure must be at least doubled or sixteen seconds given; and, unless the undertiming were only slight, even such increase would not suffice. For this reason I have, in my unit method, expressed the speeds of plates in steps of one hundred per cent, making the ratio one of geometrical progression as shown on the diagram.

On asking the expert in one of the plate factories, for an expression of the speed of their plates in steps of one hundred per cent, as I did, not long ago, the information was tendered that one particular plate was twenty-five per cent slower than a certain other. In other words, I was told that if the faster plate would be correctly exposed in one second, the other would require a second and a quarter. My reply, in substance, was: "Supposing a subject brightness condition that would be correctly exposed in one second, using either of these plates; do you then mean to say that exposure of one-half and of two seconds would not also secure practically perfect negatives? If, on the contrary, such variation would result in unsatisfactory negatives, there is, in

your plates, a lack of latitude that would, in actual practice, condemn them immediately and forever. If, as is the case, good negatives would be the result with such variation, why discredit your plates by holding that their variation, in speed, is but the useless degree of twenty-five per cent?" Quite naturally he held for the latitude of the plates and withdrew from his position on the twenty-five per cent variation in speed. When theory and practice conflict, theory is the less reliable guide.

In familiarizing one's self with the diagram in order to apply it to the problems of exposure, one should read the top line through in this way: "If a subject of normal contrast, one having in its high-light area a brightness or actinicity of one unit or one actino, requires, with the unit stop, one hundred and twenty-eight seconds exposure, for any other exposure indicated by the speed of the plate; a brighter subject, say one of eight actinos brightness as indicated lower down in the first column, will require an exposure of one-eighth of one hundred and twenty-eight seconds, or sixteen seconds. And, if the unit stop requires sixteen seconds, the four-unit stop requires one-fourth of sixteen seconds, or four seconds.

UNIT EXPOSURE FOR STOP USED, FOUR SECONDS. SUBJECT BRIGHTNESS, ONE ACTINO. 4 ÷ 1 = 4 SECONDS EXPOSURE

To be made as simple as any other everyday problem, the determination of photographic exposures requires only the use of simple numbers to express degrees of actinicity and working values of stops. Lacking these simple value numbers, the practice of photography has suffered a bombardment of special and arbitrary methods of determining correct exposures; methods that, instead of depending upon simple, intuitive reasoning from cause to effect, involve some trick or device, some table or sliding scale, that leads away from clear thinking or understanding. To understand the nature of the "actino" as a unit, one has only to realize that the light reflected from any lighted surface or expanse will tint or darken a light sensitive surface held so as to

UNIT EXPOSURE FOR STOP USED, FOUR SECONDS. SUBJECT BRIGHTNESS, TWO ACTINOS. 4 ÷ 2 = 2 SECONDS EXPOSURE

confront it. To fix the unit of brightness it is only necessary to limit the convergence of the light rays to a known and practical solid angle dimension and to select a tinting time to denote unit actinicity.

Obviously, the degree of sensitiveness and the depth of tinting or darkening of the light sensitive medium must also be standardized in order that the degree of brightness may be dealt with as factors or units. The unit or "actino", as defined in Unit Photography, is an intensity that will make: (1) a least visible tint, (2) on a selected fast tinting medium, (3) in one minute (or sixty-four seconds in practice), (4) when the light is made to converge in a form equal to one-eighth of a hemisphere or as a cone whose altitude is one. (The same as f-1 in the f- system of stop notation.)

In the data given under the illustration herewith, the full computation, as per diagram, is not given, for the reason that lenses do not as yet carry the unit stop value markings. The unit exposure for the plate or film used, when exposure is made on a subject of one actino brilliancy with unit stop No. 1 (which equals f-64), is shown on the diagram, "Unit exposure for stop used" varies therefrom as the size of the latter stop varies from that of the former. The "Unit exposure for stop used" being known, that time is simply divided by the actino number of the subject in hand to find the correct exposure therefor.

The highest authorities consider all the arts as one in fundamental principles, if not in aim. Phidias, Giotto, Leonardo da Vinci, Michael Angelo and the greatest artists of all times were not specialists in one art, but students in every form of art. They were painters, architects, sculptors, musicians and poets.

A Santa Clara Hold-Up

By Claud H. Simson

With Illustrations by the Author

My fellow readers may perhaps be interested in an exciting adventure that befell me recently here in the famous Santa Clara Valley. Early one morning a juvenile desperado burst into my studio, and after the first outbreak of excitement was over, I realized that I was in the hands of one determined to

secure post cards at the point of a revolver, if necessary. As the photographs herewith will show, he was fully prepared to carry out his designs and the best that I could do in self defense was to take several shots at him with my big Voigtlander. Despite my own display of courage in doing this, the young rascal succeeded in escaping "armed and unharmed", as well as in full possession of the post cards for which I had been so unceremoniously "held up".

I feel, however, that I had a lucky escape and am relating my experience so that our Eastern friends may know the risk they run when they venture into the confines of the wild and woolly Santa Clara Valley, a section that does so much towards supplying the homes of the country with the staple and toothsome prunes so necessary to our welfare. In my own case, being an old time wet plate photographer, I am finding only temporary inconvenience from the dreadful shock that this experience naturally caused me.

By being pleasant—always greeting others with a smile—one is brought nearer to God than through any prayer.—Vive Kanada.

Choosing a Camera

"A Dollar's Worth of Advice"

With an Illustration by the Author

Here's a young man who is willing to risk getting his money's worth when he sends me a dollar for advice on the selection of a camera. He has had a year's experience and good success with a small, fixed-focus, roll-film, box camera. Now he feels he can spend up to twenty-five dollars, not more, for a larger and more capable outfit. How can he invest his money to the best advantage?

"My Dear Mr. K————————:

"You, my friend, are at a critical point in your photographic career, and much depends on your next step. If you choose aright, your interest and enthusiasm in photography will increase. If you get the wrong sort of outfit, you stand a good chance of becoming discouraged.

"There is one thing more than all else which is going to be a stumbling block when you get a larger camera. That is focusing. If you master it, you will probably have satisfaction and success. If not, you will surely fail. You know what I mean by focusing. It is adjusting the distance between the film and the lens so that those portions of the view located at a certain distance from the camera are sharp and distinct; or, 'in focus'. This you have not had to do with the little, 'fixed-focus' box camera, and consequently it is going to bother you somewhat. With a roll film camera you have to be guided altogether by the marks on the focusing scale.

IN ZERO WEATHER—Cramer Double Coated Instantaneous Iso plate, Collinear lens, deep yellow filter, f-5.4 stop, one-fifth second exposure.

For instance, the principal object in the picture, that part you wish to be in sharpest focus, you estimate is ten feet distant. Very well; you set the indicator at ten feet and fire away. If you estimated accurately, the object will be sharp in the picture. If you guessed badly, it will not; and here is where you begin to be discouraged. If you keep on guessing, sometimes right and sometimes wrong, you will get more and more discouraged. The proper thing to do is to drill yourself in estimating distances, doing so without making exposures. Get a tape measure or a yard-stick, measure off various distances and get them fixed in your mind. Then estimate distances and check up your judgment with the tape measure. When you get so you can estimate with considerable accuracy, then and not before, you may venture to make exposures. Some people never dare to depend on their judgment with a focusing scale, and always carry a measure with them when operating a film camera. It is really the safest way, but not many people will go to the bother. An excellent idea for everyone who has a roll film camera is to buy a piece of finely ground glass, the same width as the picture the camera takes, and about three-fourths of an inch longer. Take off the back of the camera and lay the glass on the place usually occupied by the strip of film, with the ground side of glass toward the lens. Secure the glass in that position with rubber bands. Then open the shutter and focus away to your heart's content on objects at various distances, observing the position of the focusing-scale indicator each time. In this way you will learn quickly a great deal about focusing that would only slowly impress itself on your mind by working exclusively with a scale.

"With a plate camera, you do not have to depend on the focusing scale; but can, before you take each picture, look on the ground-glass and see just how the details of the view will impress themselves on the plate. Not only can you make certain that some particular object will be in focus, but you can see how much out of focus other objects are; and this is something no focusing scale will show.

"I have gone to this length to impress upon you the great advantage of being able to focus on the ground-glass, and not having to depend altogether on a focusing scale. The larger your camera is and the larger its lens, the more difficult it will be to estimate distances with the required accuracy, and the greater advantage it will be to focus on the ground-glass, and not merely by scale.

"Up to 3¼x4¼, or with a five-inch lens at f-8, I would dare to focus by scale not nearer than six or eight feet. With a 3¼x5½ camera, or a six and one-half inch lens at f-8, I would not like to focus by scale nearer than ten or fifteen feet. With a lens of more than seven inches focal length, or with an opening in any lens more than an inch in diameter, I would not venture to focus by scale for distances less than twenty-five feet. And you should bear in mind that this is a matter with which I have had considerable experience, and have perhaps a fair average ability, although I am not bragging at all. I cannot tell whether, after twenty-five years' practice, you would do better than I, or not so well.

"Based on what I have said, therefore, my advice to you is to be content

with a comparatively small camera, say not larger than 2¼x3¼, if it is a roll film camera which has to be focused by scale. You can get a dandy little camera of this size, with an anastigmat lens, for fifteen dollars. If you want larger pictures from some of your negatives, get an enlarging apparatus.

"Or here is another plan. Get a 3¼x4¼ roll film camera, with an extra back which will enable you to use plates, and focus on the ground glass when you desire. You can buy such an equipment within your twenty-five dollar limit. This would be more satisfactory in my judgment than a plate camera with film pack adapter; and you may depend upon it I have tried both, and am giving you the fruits of my experience. With film pack, it is true, you can focus on the ground-glass before each exposure, which you can't do with roll film; but the sensitive surface of a film pack cannot always be depended upon to be just a certain distance from the lens, as a glass plate or roll film can be. Besides, if you do your own developing, which I hope you do, you will find the pack somewhat messy to handle; while if you have your developing done by someone else, you will find it costs twice as much to have packs developed as roll films.

"Plates and plate cameras are not popular with amateur photographers, yet for the person with serious intentions and willing to go to a little extra bother and exertion, plates offer certain undeniable advantages. Professional photographers have to get results, their bread and butter depends on it; and almost without exception professionals use plates. If you want pictures larger than 3¼x4¼, and do not care to undertake the work of making enlargements, I should advise you to get a plate camera. A 5x7 view camera with ample range of all adjustments is a soul-satisfying instrument. I refer to the regulation view camera, with rear focus, double swings, reversible back, rising front, etc. You can do pretty much anything you want to with a camera of that type, see what you are doing, and take comfort in the operation. You can get such a camera, with a good rectilinear lens, within your appropriation.

"More than one camera, however, is really needed to encompass all situations. A good outfit would comprise a 5x7 plate camera for work around home, or where the camera need not be carried around much; and a 2¼x3¼ roll film camera to tuck in your pocket or suit case when away on an outing or vacation trip.

"Here, then, is a summary of my advice to you. If you get a camera using roll films, do not go above 3¼x4¼ size at the outside; and for films exclusively, 2¼x3¼ is better, depending on enlargement for larger pictures. If you want to use both plates and films with one camera, don't go above 3¼x4¼ either, and a roll film camera with plate attachment will give greater satisfaction than a plate camera with film pack. If you must have a camera to take direct pictures larger than 3¼x4¼, get a plate camera.

"The modern tendency in photography is toward smaller and smaller cameras, depending for larger pictures on the process of enlargement. This is sound practice, based on many good reasons, some of which I have mentioned. I started, years ago, with a small plate camera and worked up, through various models of film and plate cameras until I reached the pinnacle of my ambition

in an 8x10 view outfit. Then I fell off the pinnacle and got a miniature 1¾x2⅜ plate camera and an enlarging apparatus. I still have the 8x10, and never use it. I also have a miniature camera, a roll film model, which I use a great deal for memorandum and snapshot work. But most of my serious and careful work I do with 3¼x4¼ plates, from which, by enlargement, I make prints 5x7 or 8x10. If I were confined to one size and one camera, I should choose a 3¼x4¼ roll film camera with a plate attachment, and I should have an enlarging apparatus as a part of my outfit.

"Buy apparatus only where you are sure you can return the goods undamaged within a certain time and get your money back. Every camera should be sold with the privilege of trial. And another point. Buy only apparatus which is universally recognized as standard. Then if you should want to sell or exchange your outfit later, you could do so to better advantage.

"I wish you all success with your new camera, and hope the suggestions I have offered will be of service.

"Very truly,

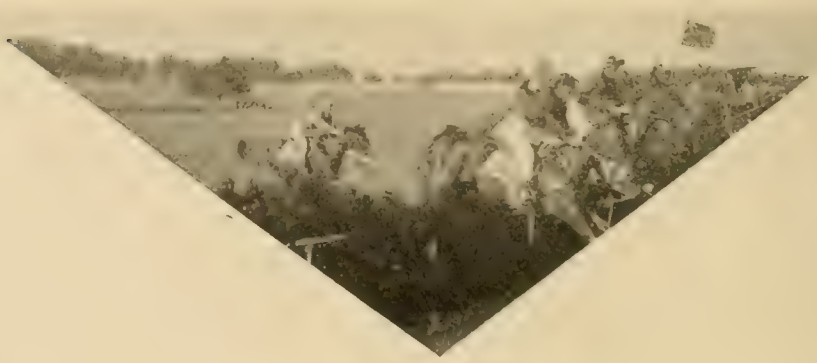
(Signed) "Charles F. Rice.

"Mamaroneck, N. Y., September 3, 1917."

Art Principles

Modern artists the world over, in defining art in the simplest words, agree that "Art is arrangement". We may add that its study is not a matter of asking for recipes from this or that school, this or that national or racial, it is the acquiring of certain simple principles that underlie all art of all times. By applying these principles, growth comes, insuring insight into art, this or that period, classical, renaissance or modern. On the contrary, more complex methods of reasoning, and bringing the power to execute difficult problems.

In art we are dealing strictly with the mental and emotional faculties more or less developed in each individual. These faculties respond when, on a flat surface such as paper, we find certain emotional and intellectual records of things we have seen or experienced in nature. And it is the manner in which these records are made that affects us as art. Every stroke, touch, spot and patch of light and dark governed by the mind and hand of the artist interprets first an emotion, second a meaning.—Otto Walker Beck.



PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

HANDLING PRINTS IN DEVELOPER: For this I use a form of tweezers made out of a narrow strip of sheet brass about nine inches long. This strip I bend back on itself so as to form a sort of crude tweezers and then bend it so that instead of being straight, these tweezers have somewhat the shape of a stove lid lifter. Bent in this form it does not slide off the edge of the developing tray and it is just as effective for grasping the edge of the print as if it was allowed to remain perfectly straight. With this I can handle prints very rapidly and without getting any of the developing solution on my hands where it will contaminate the paper I am handling in printing.—O. L. W., Minn.

THE SITTER'S EYES: The sitter with unusually large or unusually small eyes should be given a little special attention or the results will be displeasing. If large, so pose the subject that a downward inclination of the eyes is secured; if small, pursue the opposite course. Deep-sunk eyes should be given a full face position, yet with the eyes directed towards a point a little to one side of the camera. Of course the lighting should be so arranged as to assist in minimizing the difficulty sought to be overcome and the pose so arranged that the methods suggested will not result in an unnatural effect.—W. A. S., Illinois.

TOO HARSH LIGHTING: The most common fault with portrait photographers is the use of too harsh a lighting. Head screens and reflectors are rarely, if ever, used too much. If one will but stop and recall how hard it was for him to learn to "see the lighting" on his sitters' faces, he will realize that the average person is not conscious of any of the shadows on the faces of those about him, much less of the dark blotches of shadows that so many photographers work into their portraits. While it is of course impossible to produce an effect of form without gradation of light and shade, an avoidance of deep shadows and chalky high lights will result in the improvement of any photographer's portrait work.—A. S. D., Florida.

ENLARGING FROM A THIN NEGATIVE: When enlarging from a very thin negative, one that gives a flat print in the ordinary way, I soften down the light being used until the exposure necessary is increased to about four times what it would be with the usual light. By working in this way I can produce fine enlargements from negatives that even our local finisher finds capable of only flat failures.—O. L. W., Minn.

REDUCING A NEGATIVE: Dissolve eighty grains of iodide of potassium in four ounces of water, and add a few crystals of iodine, a crystal at a time, until the solution is a deep claret-brown. This forms a stock solution. For use, dilute each ounce of the stock solution with two ounces of water. Immerse

the plate until the surface appears fairly white all over. Then transfer it to a one-in-twenty hypo solution until it has resumed its normal color; after which wash thoroughly. The operation may be repeated as often as necessary.—T. E. P., California.

DEVELOPING BY FACTOR: To obtain negatives of uniform density, have developer ready mixed, place a watch conveniently, and put plate in tray. When second hand touches an even minute, flow the developer over the plate. As soon as the image shows a trace of appearance, note how many seconds has elapsed. If thirty, multiply this by the factor given for the developer you are using. Some attention should also be paid to the temperature of the developer, as it has no little influence over the results.—T. E. P., California.

PORTRAITS IN SMALL ROOMS: I was recently called upon to make a portrait of a very old lady who could not well be brought to the studio. At the residence I found that the only convenient situation for a good lighting did not permit of getting far enough back with the camera, the room being a small one. A fairly large mirror was brought into requisition. The camera and sitter were placed not far apart, both facing the mirror, which was turned towards a point half way between them. The result was an excellent negative, but of course a reversed one that had to be printed on single-transfer carbon paper, or else printed through the enlarging camera. In trying this plan, one must remember that the focal distance is that from camera to mirror plus the distance from mirror to sitter, not the first distance alone, as one might suppose. —E. D. C., Virginia.

SPRING
By BELLE JOHNSON

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

Vol. XXIV San Francisco, California, October, 1917 No. 10

Why Is a Photographic Magazine?

Our editorial, "Why is a Professional Photographer?" in our August issue, has brought us several letters protesting against our use of the words "toll" and "tribute" and intimating that we have somewhat overdrawn our picture of the situation. We do not wish to impose upon our readers a lengthy defense of our position, but possibly the following, from a mimeographed letter sent out to photographic manufacturers by the president of the Professional Photographers' Association of Texas, soliciting advertisements for an annual, will interest in this connection. It reads:

> "We wish also to say that we hold a Charter from the National Association of America. Being the only state holding a separate Charter, we make this mention that you may know that we are working under the rules and regulations of the Photographers' Association of America. By reason of this fact you are under moral obligations to advertise with us, and if you do advertise with us, you will not incur any penalty from the P. P. A. of A."

As we said in our other editorial, "Nice business, isn't it?" "Toll" and "tribute" may not be nice words to use in speaking of the activities of those having in charge the destinies of the "official organ" of the Professional Photographers' Association of America; but, the word "penalty," as used above over the signature of the president of the "only" association holding a separate charter should absolve us of any mistakes in our own choice of words. To be frank and candid with our readers, we are not striving to save the photographic manufacturers from a "penalty" imposed by the P. P. A. of A. for advertising as they see fit, because we feel that these manufacturers are quite able to take care of themselves when the matter becomes as cold blooded as it seems to be getting. But, as publishers of a photographic magazine, and ourselves lacking any opportunity of exacting "toll", "tribute" or "penalty", whichever you wish to call it, from photographic manufacturers, even did our conscience permit us to do so, we must protest against the use made of this "official organ", posing as a reputable publication devoted to photography.

A Visitor From The Orient

John D. Zumbrum, one of the largest dealers in photographic supplies and photographic views in China, is spending a few months in this country, combining business with pleasure; the latter including a trip to his old home in Pennsylvania, and another to New York, where he hopes to convince a certain charming young lady that she should add a few more years of life in Peking to the visit which she made there a year or two ago. Mr. Zumbrum's store on Legation Street, Peking, is well stocked, well located; and, what is more important, well patronized. While here he will arrange with two or three firms in different parts of the country to stock his excellent photographic views, both sepia and hand-colored, by Chinese artists.

Why Not Write To Them?

Why is it that more of our readers do not avail themselves of the opportunity that a letter would afford to talk things over with our contributors? Practically every one of the good friends who write for our pages would be more than pleased to hear from those who read their articles and find interest therein. When only one or two letters drift in, the contributor feels that his efforts have not received much attention. We, of course, know from our own experience, that the average reader fails to respond as he should. We are not asking you to write in and tell how well you like some particular article, just to make the author feel good; but when you find an article that particularly interests, or one on a subject concerning which you would like to ask a few questions, or an article making statements that you would like further amplified, you should drop a line to the author, care of this office, and make your wants known. Just the other day, one of our readers and one of our contributors met here in our office. The former admitted having wanted to write the contributor for over a year, but feared to do so, thinking the latter might resent the trouble of answering, if not of reading over, the letter. And this same contributor had asked me several times if there had not been a few readers interested enough to write concerning the article or ask for further information. One feared to write, while the other was disappointed because he received no letters; quite a sensible situation, was it not?

And there is another way in which you, the reader, can help. Suppose a certain article gives the writer's method of doing a certain thing, and you have a way that you think is better in some respects. Write a letter telling us about it so that others may share in the benefit. Bear in mind that most of our contributors are every-day mortals, readers like yourself. They do not pose as being authorities, as being infallible; in fact, we try to impress it upon them that what we want is the knowledge gained by their every-day working experience. Our readers and our contributors are all members of one big family, club, society, or what you may. We try to get our readers to contribute of their knowledge, and we try to get our contributors to understand that they do not have to be possessed of some entirely new or epoch-making method or procedure in order to write an instructive article. If we could, as in the one instance mentioned, introduce the contributor, personally, to each reader interested in his article, the situation would be different, more letters would be written. Not only would the contributor feel that his work was appreciated, but the readers would be helped to a greater extent. In addition, we ourselves would gain greatly by the reader and the contributor getting closer in touch with each other when they found they were interested in the same subject, because we could learn just what subjects interested the greatest number of our subscribers. Our contributors are doing their best, and we are doing all that we can under the circumstances; consequently, dear readers, it is your good selves who are, through a mistaken idea that your letter will not be appreciated, keeping us all from enjoying the benefit that we should. Why not mend your ways?

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

The Parallax Method of Fine Focusing

A recent note on the parallax method of focusing has brought a request from a valued correspondent for further and fuller information, and as we have other evidence that this mode of focusing is far less well known and practiced than it should be, we are very pleased to comply with the request. Perhaps it will be best to start with a simple illustration of the principle of the method before going into details.

Suppose a lens L, figure 1, produces at F a sharply defined image of a point, then this image-point, F, can be seen by the eye from A or from B, or from any position between A and B. Let us assume the existence of another fixed point, C, which may be a mere speck on a sheet of clear glass, S, situated, say, between the eye and the point F. It is now obvious that the eye at A will see F to the left of C, while, if the eye is moved to B, then F will be seen to the right of C. The point F will then seem to move relatively to the point C in the same direction as that in which the eye moves, this effect being due to what is called "parallax".

Now, assume the screen to be moved forward to the position S2, figure 2, between F and the lens. This carries the point C forward also, and now, when we view F from A, it appears on the right of C, and when we move the eye to B, then F appears to be on the left of C. Thus, with the screen in this position, if the eye moves from A to B, or from left to right, the focused point F seems to move in a direction just the reverse, or from right to left.

Next, let us assume a third case. Let the screen, figure 3, be put at S3, so that the focused point F lies on its surface, while the point C, on the same surface, is a little to the right of it. It will now be clear that, whether we look at F from A, or from B, it always remains on the left of C, and at the same apparent distance from it. It therefore shows no movement at all relative to C, as the eye travels backwards and forwards between A and B. This lack of apparent movement forms the test by which we prove that the surface of the screen S is so placed as to pass exactly through F.

The general idea of the method of focusing by parallax should now be evident. In place of ground-glass we use a clear glass screen with a mark of some kind upon it, a mere scratch is sufficient, and we adjust the cam-

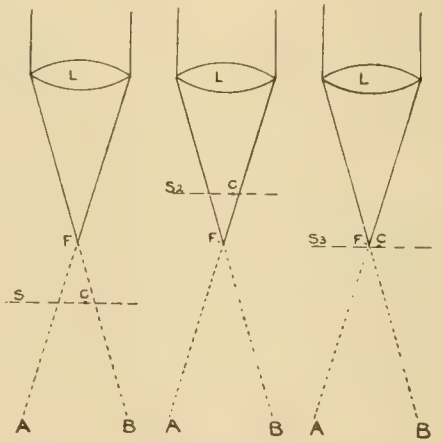


Fig. 1 Fig. 2 Fig. 3

era extension until the conditions illustrated in figure 3 are fulfilled, that is, until the image, as seen from anywhere between the limits A and B, appears to be quite stationary in respect to the fixed mark upon the screen. If the image appears to move with the eye, as the eye moves, we know that the focus is in front of the screen, whereas, if the image appears to move in a reverse direction to that of the eye, the focus must be behind the screen. In this way we know the direction in which the focus is displaced, or, perhaps it would be better to say the screen is displaced, and know what kind of readjustment is necessary.

A very slight movement of the eye is all that is necessary to detect movement of the image, and it is by no means essential to

move to the limits A and B, which, with a lens of large aperture, will represent a considerable distance. A quarter of an inch will probably represent the extreme movement necessary with the naked eye, while with a powerful magnifier less will be required.

The use of a clear glass screen with a scratched surface as a focusing screen is often referred to by various writers, but many of those who have tried it have abandoned the idea, chiefly because they have not applied it properly. It has frequently been stated that correct focus is secured when the focus F and the point C appear equally sharp to the eye, and the experimenter is instructed to keep his eye rigidly focused or accommodated upon C, and to rack the camera in or out until F is seen equally sharp. In view of the fact that the eye accommodates itself to various distances with very great facility, this is a very difficult, if not impossible, operation, and even the use of a powerful magnifier, which limits the accommodation, does not help much. In short, the instructions are quite unpractical, which is the reason why so few adopt the clear screen. If, however, all idea of judging sharpness of definition is abandoned, and we look for movement alone, the matter becomes quite simple and practical, and a strong magnifier then is of great assistance, as it magnifies and renders visible the most minute movement.

We find it advantageous to use parallel lines as screen marks, as the movement of a point between two lines is even more easily detected than a movement relative to a single line. We prefer a screen ruled with a finely divided scale, but such a screen is difficult to get, and even more difficult to make. One ruled in squares is very convenient, and a test plate of the kind sold for use in focusing an enlarger is very useful, though the lines are somewhat coarser than is desirable. With such a screen or continuous scale it is possible to test the focus in various parts of the image field, and so gain a good idea of the degree of flatness of field given by the lens. For general use, however, it is desirable to have part of the surface of the screen ground, or treated in some way, so as to render focusing by the ordinary method possible. When the camera is first set up and everything quite out of adjustment, no image is probably visible at all, especially if the extension is too short, and we cannot apply parallax methods until the image comes into view. A condition of approximately sharp focus is more speedily reached with a good ground-glass screen than with a clear one, and then the final fine adjustment is made by the parallax method.

The essential operations of the method are therefore as follows: Bring the subject roughly into focus on the ground part of the screen. Select some small and convenient piece of detail that is visible in the clear part of the screen, and that falls near one or more of the lines marked on the glass. Note whether this selected part of the visible image appears to move or to remain stationary, relative to the marks on the screen, when the eye is moved through a short lateral distance. Remember that if the image moves with the eye the screen is behind the focus, and needs racking forward. If the image moves in the reverse direction to the eye the screen is in front of the focus, or too near the lens, and needs racking backwards. If there is no visible movement of the image, the focus is as exact as possible.

A good screen should be one ground so as to leave a clear horizontal band, say three-eighths or one-half inch wide, right across the center, a fine scale then being ruled on this clear band. The late D. J. Carnegie, who experimented very considerably on this matter of critical focusing, recommended, however, one of the following type: A screen was ground all over with the exception of a small circular space in the center, a feat quite easily accomplished by covering that space during the grinding process with a metal disc cemented on the glass. A sharply cut piece of tinfoil was then stuck over half the clear disc, and focusing was accomplished by observing some part of the image that was visible just at the edge of the foil. If the focus was not perfect this point would disappear behind the foil with a very slight movement of the eye, while if it remained just visible from all possible viewing points, the focus must be perfect. This method in his hands gave results which withstood most critical tests. The magnifier used was sometimes a linen-tester cemented to the screen, and sometimes a very small and powerful Coddington. Such magnifiers

give distortion and various aberration effects, which may suggest movement that does not really exist, therefore they must be very exactly centered over the edge of the tinfoil or over the test line. Lately we have adopted a Stanhope lens with considerable satisfaction; the advantage of this as a magnifier being that it is free from aberration. As a matter of fact it is only so free for an object situated on its own flat front surface, but in practice, if a thin glass focusing screen is used, the added thickness of glass makes very little appreciable difference. The disadvantage of the Stanhope is that the eye must be a little distance from it, but this is no great inconvenience if a focusing cloth is used, and by mounting the lens in a cardboard tube a cloth can be dispensed with.

Finally, it should be stated that, as in the parallax method we are not looking at all for fineness of definition, depth of focus does not affect the result. We are judging movement only, and therefore can adjust focus with a small aperture, as well as with a big one, and so can always focus with the stop that is to be used.—*British Journal of Photography.*

The Kodak Range Finder

One of the most ingenious devices which we have ever seen upon a hand camera is that which is known as the Kodak Range Finder, by the use of which all judging of distance can be done away with, and the camera focused on the object desired just as definitely as it is with a ground-glass screen, although the manner in which this is done is totally different. The range-finder is not a separate appliance for attachment to any camera, but is an essential part of the instrument, built into it and forming a portion of the focusing system. It is at present only supplied in connection with the No. 3A Special Kodak.

In principle the range-finder is the same as that of military range-finders; the object the distance of which is to be ascertained being viewed from the two extremities of a baseline, and the angles made by the two lines of sight with the baseline measured. From these data, it is a simple matter to construct a triangle which will give the distance of the object.

Such trigonometrical operations, however, lie altogether outside the scope of the average hand-camera user, who, even if he would be bothered by them, often could not find the time to carry them out. While he was doing so, the object would move and the calculations become useless. So that in the Kodak Range Finder it has been necessary to apply the principle in a direct form. The worker does not know anything about baselines and angles, he has no calculations to perform; all he has to do is to look into a little finder of peculiar construction and turn the focusing screw of his camera until he sees the subject unbroken. When this is the case, he will find that he has focused his camera and can expose without a glance at the focusing scale, or a thought as to the distance which separates him from his subject.

The way in which this is accomplished is very clever. At the base of the front of the camera are two view finders, separated by some three inches. One of these is a mere narrow strip, so placed that by holding the camera on its side and looking down upon the bigger finder, which is the lower one, the image of the object is seen with a strip cut out of the middle of it, that strip of image being provided by the second or upper finder. As these two finders are three inches or more apart, it is evident that they will not give exactly coincident images of near objects, unless the axes of the two finders are no longer parallel, but converge upon the object, and the nearer the object the greater must be this convergence. So that these two finders could be made to indicate the distance of an object by turning one of them until its image exactly coincided with that given by the other finder, and then measuring the angle through which it had been turned.

Instead of measuring the angle, a wedge lens is provided in the Kodak Range Finder, which shifts the axis of finder B more and more, until at last the two images exactly coincide. The distance is measured by the extent to which this wedge lens has had to be introduced in order to bring this about. The wedge lens is attached to the base of the camera, while the finder is part of the movable front, which travels in and out as the focusing screw is turned. The wedge lens being suitably proportioned to the lens of the camera itself, the movement of the wedge lens in the finder, or rather the movement of the finder with reference to the

wedge lens, is the same as that required to focus the camera lens on the object.

The result is that if on looking into the finder we see the image in an unbroken manner, we know that it must be in focus. If it is broken—that is to say, if that portion of the image provided by the smaller finder is displaced with reference to the rest of the image—we know that it is not in focus, and turn the focusing screw one way or the other until the displacement vanishes and the two images exactly coincide. When they do, the image must be sharp.

There is no difficulty in using the range-finder. We handed the camera over to someone who has had no experience of hand cameras or of photography at all, and found that in such unaccustomed hands the object was correctly focused in not more than three or four seconds.—*Photography.*

Simple Photographic Method of Recording Finger-Prints

A very simple process has been devised by the Eastman Kodak Company for making finger-print records directly on photographic plates or films from which as many copies can be made as desired. The advantage of such a method over that frequently in vogue, where the finger-print is daubed in ink and an impression made on a specially prepared identification blank, is that copies can be made without the use of a copying camera.

The process consists essentially in greasing the finger with vaseline, wiping off all the excess of vaseline, and pressing the greasy finger on a previously fogged sensitive plate. The plate is then placed for a period of from ten to thirty seconds in a developing solution which attacks the photographic emulsion and turns it black with the exception of that part covered by the vaseline, which is unchanged. Obviously, the reason for this is that the vaseline is insoluble, and for a short time prevents the developer from working through to the emulsion. The plate is next fixed in hypo, the time of fixing being some six to ten minutes longer than usual in order to allow the hypo to get at the emulsion under the vaseline. The vaseline is finally wiped off with cotton and the plate washed and dried. A negative is thus provided from which any number of photographic prints can be made. The process of preparing the plate can be carried on anywhere in ordinary daylight without the use of a dark-room. If one or two records only are desired the finger impressions can be made directly on previously fogged photographic paper, developed and fixed in the usual way.

A process has also been developed for making impressions directly on blue-print paper. Instead of greasing the finger with vaseline, a mixture of lanoline and all the saturated stannous chloride which it will hold is smeared on the finger. The finger is then pressed on the paper, which is washed in cold water.

The finger lines are not quite so sharply defined as in the case of a silver-emulsion paper, and the process accordingly is not so satisfactory as that with the vaseline and silver paper.

The principle of stopping the development locally by means of grease, as outlined above, may also be used for other purposes, such as making photographic records of line drawings where the lines and characters have been properly raised or depressed.—*British Journal of Photography.*

The Photo-Aero War

H. G. Wells' new book on his visits to the French, British and Italian fronts, "War and the Future," describes fascinatingly the important part now being taken by the camera. Speaking of the allies' aeroplanes as they soar over the German lines, the author says, "Close after the fighting machines come the photographic aeroplanes, with cameras as long as a man is high. They fly low—at 3000 or 4000 feet, that is—over the enemy trenches. The "Archibald" leaves these latter machines alone. * * * but they are shot at with rifles and machine guns. They do not mind being shot at; * * * they will come back with forty and fifty bullet holes in the fabric. They go under this fire along the length of the German trenches exposing plate after plate; one machine will get a continuous panoram of many miles, and then come back to the aerodrome to develop its plates. There is no waste of time * * * the photographs are developed as rapidly as possible. Within an hour and a half after the photographs were taken prints are going into the bureau for the examination of aeroplane photographers, and are thoroughly scrutinized and marked."—*Amateur Photographer.*

Fixing Bromides For Toning

We have many times pointed out the necessity for giving proper attention to the fixing of bromide prints when these are produced in quantity. A printer working against time is very apt to overload his fixing bath, and to allow the prints to become almost a solid mass before removing them to the washing tank. If the object were merely to stop development this would not matter so much, but to consider the prints as properly fixed after such treatment is simply asking for trouble. The least that should be done is to remove the prints or enlargements singly to a second fixing bath, moving them about, so that unfixed portions have a chance of being acted upon. This is especially necessary when the prints have to be toned by the sulphide method, for if there is any trace of unaltered bromide in the film, it will darken in the sulphide of soda solution, and either make the print generally muddy or become manifest in the form of irregular patches or stains. A very simple method of testing for fixation is to immerse an unbleached print in the sulphide solution, when any unaltered bromide will at once assume a brown tint, the image remaining black. This action can be demonstrated by taking a strip of undeveloped bromide paper and putting it into the fixing bath in steps of one inch, allowing half a minute for each step. If, say, five steps are made in this way, the piece held in the fingers being kept dry, and the strip well rinsed and immersed in the normal sulphide solution, it will be found that the unfixed portion will turn to a rich brown, the steps showing a lighter tint as the immersion has been longer, those portions having two to two and a half minutes remaining white. It is, of course, highly necessary to wash out the hypo thoroughly before bleaching, as any hypo in the paper combines with the bleacher to form Farmer's reducer, which will weaken the whole print. —*British Journal of Photography.*

Photography of Quinine

References are frequently met with in text-books to the fact that writing or a drawing made with a solution of quinine on white paper can be photographed, even though invisible to the eye. Very seldom, however, are instructions given in respect to the method of producing such a photograph, and so a great many who try the experiment fail, and come to the conclusion that the whole thing is a myth. The facts are as follows: Quinine fluoresces in ultra-violet light, which means that the invisible, but very actinic, ultra-violet rays are converted into visible but less actinic rays. The part of the paper not written upon still reflects ultra-violet, therefore there is a difference in the actinicity of the rays reflected from the paper and from the writing. If ultra-violet light alone is employed, then, as the quinine does not reflect it at all, there is, photographically, as much difference between the writing and the paper as between black and white; but if we use ordinary light the result depends on the proportion of ultra-violet contained in that ordinary light. In daylight we have plenty of ultra-violet, but also so much visible actinic light that the difference between the writing and paper is lost. The fluorescence cannot be seen, while the writing reflects as much visible actinic light as the paper and photographs almost as readily. With an artificial light, such as given by the mercury-vapor lamp or the enclosed arc, the ultra-violet is, proportionately, much stronger than the visible light. The fluorescence of the quinine becomes visible, and it also becomes possible to photograph the writing or drawing. If under these conditions failure is met with, the reason is likely to be that the lens absorbs all the ultra-violet light. It is rather difficult to secure quite satisfactory ultra-violet photographs with anything but a quartz lens, though, in favorable conditions, ordinary lenses generally pass enough to produce a faint image. Chinese white is apt to photograph grey because it, like quinine, will not reflect ultra-violet light, and, as process workers use lights that are relatively rich in ultra-violet rays, Chinese white is best avoided in the case of drawings that are to be reproduced. If it is desired to experiment with quinine, a solution of sulphate of quinine should be made with citric acid, not sulphuric, as this tends to stain the paper. The writing, though as white as the paper, is not, in our experience, quite invisible, and as a medium for secret writing it is probably much overrated. Chinese white is a more convenient medium for such a purpose, and is readily photographed by ultra-violet light. Quinine writing can be read in a suitable light by virtue of its bril-

liant fluorescence, and need not be photographed at all.—*British Journal of Photography.*

Points For Vest-Pocket Camera Users

One of the greatest advantages the photographer can possess—we might almost say essentials—is the knowledge of the limitations of the particular instrument that he happens to use, and this information will save many wasted exposures, and consequently much disappointment as well. In the case of the vest-pocket camera, so popular and so efficient an instrument at the present time, in addition to its many advantages—and possibly no class of instrument offers quite so many—there is one of these same features that at times, and in certain classes of work, tends to be a disadvantage, namely, the short focus of the lens. A short-focus lens must perforce be fitted to a vest-pocket camera, for the reason that if long bellows extension were required the instrument would soon cease to belong to this class, on account of the increased bulk. On the other hand, the short focal length of the small lens offers special advantages in its great "depth of focus" qualities. Then, again, the vest-pocket camera undoubtedly is a hand-camera type, but that does not say that for some subjects and under certain conditions a tripod or some form of stand is not necessary. It must not be lost sight of that in almost every case the negatives must be enlarged, and, as is well known, the negative for this must be as far as possible free from "grain". If the negative has received the minimum exposure, and development is forced in order to obtain the requisite density and detail, "grain" is, and always must be, in evidence. Many subjects taken with the vest-pocket camera held in the hand with a brief instantaneous exposure, would be rendered far better with the camera supported on a stand and a brief time exposure given. Thus "grain" in the negative will be avoided. The above points are to be noted as of considerable importance to all who own a small camera and would get the best from its use, and it will be found that if the points noted are carried into practice a very marked improvement in ultimate results will be certain.

Writing in the same journal, the *Amateur Photographer,* R. M. F. says: To lay down hard and fast rules upon such a subject as this is perhaps hardly possible, but there is one set of conditions that, without exception, will provide us with exactly what we require. These are: Full exposure, diluted developer, and a perfectly safe dark-room. Tank development is also recommended.

Many workers do not do their own developing, and here is a note for them. The professional or trade operator very rarely, if ever, takes the trouble to gain a negative that is suited for certain purpose, and half the "trade" negatives produced are far too hard and dense in character—excellent for contact printing, no doubt, but when it comes to enlarging from them they produce prints of the soot-and-whitewash order, and are consequently disappointing.

If, therefore, when taking or sending his next spool of film for developing, the worker would specify a soft, thin negative, and see that his instructions were carried out and the negatives not developed too far, then the resulting enlargements would come as a surprise and a revelation.

One point more that deserves mention is that of definition. Many of these small cameras are fitted with a good anastigmat lens. This must be kept perfectly clean. We were recently shown some prints from negatives taken with a vest-pocket camera fitted with a first-class anastigmat of a well-known manufacture. These contact prints were seemingly of perfect sharpness. The worker then showed some enlargements from the same negative. In these the definition was, to say the least of it, poor. This was not due to faulty manipulation of the enlarger, as was at first supposed, but to a fine film that covered the surface of the front glass of the lens and dulled its power of giving a really brilliant image. This was not noticed in the tiny contact prints, but when the enlargements were made the imperfections of the negative were revealed. The lens on the camera was then carefully cleaned, and the trouble has since quite disappeared. The moral that should be drawn is, to keep the camera always closed when not in use, and in a well-fitting case that will exclude all dust and damp. At the same time see that no damp or greasy finger marks get on the surface of the lens. If these points are not observed, trouble, sooner or later, is sure to be the result.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Those Old Lenses

There is a whole lot of misconception about lenses, misconception of a form that is hardly capable of being explained. Almost every photographer one meets has some old lens that is a wonder, "they do not make lenses like it today", and that kind of talk. It gives a wonderful depth of focus with the most remarkable speed and the sharpness shows what a fine instrument it is. And yet, when you come to these same old-timers in the hand of the dealers selling second-hand lenses, they can be bought for a song; but nobody wants them. In fact, some of the dealers do not care even to handle the most obsolete of them at any price. The real truth of the matter is that both ideas are wrong. These old lenses are good lenses; not as good as some of their owners think, yet so poor that they should go begging for buyers just because they are in old, sometimes rather battered-up, mounts. But all of this is simply to preface a suggestion that one can often increase his pleasure or profit by investing in one of them to supply an occasional need. I know one worker who has bought several of these lenses just to do special jobs as they presented, the profit on the one job that would otherwise have been lost, being enough to pay for the lens and leave something over for his own pocket. True, it is very nice to own a battery of expensive modern lenses, to the end that all classes of work can be handled, but for the man who does mainly one kind of work it would be tying up too much money, even if he has it to lay out, to be good business policy. Often the amateur would like to try an occasional portrait, perhaps using a very simple box arrangement for a camera. One such camera we recently saw was nothing more than a starch box that had had one end arranged to take a 5x7 plateholder snugly, and the other end to allow a sort of frame and sleeve of sateen to give the lens board about an inch movement. He only used it about home, so the appearance of the black paper-covered box did not matter much. A frame, the same dimensions as the plateholder, carried a ground-glass for focusing, care being taken to get the position of the ground surface the same as that of the emulsion side of the plate in the holder. The only expense was for the holder, and one of these old-time portrait lenses, and he was ready for some very enjoyable attempts at portraiture. And he secured some very fine results, results that he would not have had the pleasure of obtaining had he felt that he could only make portraits with one of the modern lenses sufficiently large enough to cut the 5x7 plate as he wished to do. The same with wide-angle work, long-focus landscapes, and quite a few other subjects that the all-around lens does not quite encompass. I am not advising the purchase of these old lenses as against the modern instruments where one has the money and the necessity for them, but they have their place as filling out for occasional use.

"The Longest Scale"

An Ohio subscriber writes to ask what is meant by "the longest scale of uniform gradation", as used in the advertisement of Artura paper. He says that any paper will give the white of its own surface and a black that is darker than anything he can find in nature, and therefore, he cannot understand how one scale extending from the first to the last can be any longer on one paper than it is on another. The same argument might be put forward for plates, and yet we all know that the collodion wet plate used for making line engravings will not give us the gradation that a good dry plate will. It might be a little more exact for the writer of the advertisement to say that the paper would reproduce a longer scale of gradation, but that would be saying just about the same thing. If we take a negative that itself reproduces a long scale of gradation, and from

this make a print on a paper having what is called a long scale, we will get all the steps in the scale that the negative may have. If, on the other hand, the paper is not so responsive in this direction, the full scale of the negative will not be reproduced. Either one end or the other of the scale will be lost through a number of the light tones being reproduced as white, or else several of the darker ones being represented as black; or, possibly, a little is lost at both ends of the scale that the negative shows. Of course, if the negative, through under or over-exposure, or faulty development, or both, has failed to reproduce as long a scale of gradation as it might, the less desirable paper may produce just as good a print as the other, but for a good negative the most desirable paper is one that will reproduce all the gradation possible from that which the negative shows.

One Way of Selling Pictures

There was an Eastern visitor here the other day, and in the course of our talk he asked me what I thought of the following idea. As he made a good landscape negative of some local scene,—and he was all the time making them, he would take and make up, say twenty-five, medium-sized enlargements, mount and frame them in good taste, perhaps using several different styles of frames, and then place them on sale in one or two of the local stores with the distinct understanding that the negative was destroyed, so that only these twenty-five would be in existence. He wondered if the combined inducement of their being all ready to hang on the wall and with no possibility of endless duplication would make them appeal to the possible buyers in his town. All I could do was to advise him to give the plan a good trial. It might work out all right. Of course, some, if not the major portion of my readers, would demur against destroying a good negative; but, when one stops to think how little use he ever makes out of a negative after the first few prints are made, the sacrifice is really a very small one. In addition, we all feel that we can go back to the same scene and make it better by handling it in a different way; and, if we are at all capable, we can do so, beyond a doubt. Having destroyed the original negative, there is an added incentive to make a much more effective and correspondingly different rendition of the scene, perhaps so different that it is hardly recognizable as the same. Quite true, it might be argued that the buyer of a print from the first negative was not getting as good a picture as a later purchaser, but it must not be forgotten that the two pictures would be widely different; and the first one, being pleasing enough to induce purchase, would no doubt continue to please that buyer more than could any later efforts made with an entirely different idea in the mind of the photographer. The plan is worth trying, and really should at least create interest in the work so offered. People really do not care to give the honor of a frame and a place on their walls to a picture that they will later find is being sold by the hundreds in the form of five-cent post cards.

Diluted Diamido-Phenol

It does not seem to be generally appreciated by bromide printers that a considerable degree of control over the quality of a print can be obtained by using the developer in a weaker or stronger condition than the normal one. The majority of workers seem to make a standard solution and to endeavor to get bright or soft prints as may be desired by varying the exposure and time of development only. It will be found, however, that soft prints of good color may be obtained from fairly hard negatives by diluting the normal solution with one, two, or even three times its volume of water. It is necessary that this weak developer should be made from unused solution, and that there should be only a trace of bromide solution, if any at all. If correct exposures are given, the best colors are obtained by a developer free from bromide. It must always be remembered that vigorous prints are necessary for toning, although better results are obtained from prints developed for the full time in a weak developer than from those which have had only a few seconds in a strong one. Photographers would save themselves much trouble if they would abandon the idea that a thin negative is necessary for bromide. If toning is to be resorted to, a good printing-out paper negative will yield the best colors.—*British Journal of Photography.*

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

"Stills" From Film

Occasionally one wants an enlargement from film negative, either because no stills were made of some particular scene or because it is desired to examine some certain phase of the action. While, of course, it cannot be expected that as good prints can be obtained by enlargement from negatives made in the motion-picture camera as from larger negatives made with a still camera; nevertheless, enlargements from the film often have their use.

A bromide enlarging outfit is not always accessible, particularly when one wants to make an enlargement "right now", or perhaps, to fill out some spare time. Furthermore, it is somewhat of a nuisance adjusting a piece of motion-picture negative in the regulation enlarger, putting the film between glasses and blocking off the surrounding space as one should. With many enlarging outfits the negative holders will not take the film at all, unless it be cut; and, where cutting the film would result in a break in the action, the use of such apparatus is, of course, out of the question. In addition to all this, no great enlargement can be undertaken without showing very noticeable granularity in the print, despite the fact that the film negative will produce a positive film that projects upon the screen without any apparent granularity in the moving image.

Very satisfactory results can be secured with a fixed-focus enlarger, using the shortest focus camera lens available. Such an enlarger is inexpensive; and, as it need not be bulky, quite portable. In addition, it can be arranged to enlarge from any certain frame of a negative without the necessity of cutting or otherwise injuring the scene. For enlargements approximately 5x7 inches, an Eastman Brownie Enlarger can, with but slight alteration, be used. This particular enlarger also has the advantage of being collapsible, occupies very little space when folded. Made for enlarging 4x5 and post card negatives to 8x10, it is consequently the proper length to give a five by seven enlargement from motion-picture film, using a fifty-millimeter (two-inch) focus lens. If it is not desired to again use the enlarger for its original purpose, its single lens can be unscrewed from its flange and a ring, threaded to fit within the latter, and also take the smaller motion-picture lens, screwed in its place on the lens-board, the lens pointing away from negative. The lens-board can be cut down so that it will fit nearer the small end of the enlarger box, strips of wood fixed to the walls of the box holding it in position. Its exact location can be easily determined by building up with layers of cardboard placed between the threaded ring and lens-board. The determination of focus is done by means of ground glass temporarily fastened at the large end of the box in the place that the enlarging paper is to occupy. Once the threaded ring is properly placed, it is only necessary to screw the lens into position when the enlarger is to be used.

A kit for 5x7 paper, made of cardboard, can be tacked on the center of the door at the large end of the box. It is made by gluing two parallel cardboard strips, five inches apart, onto a 6x8 card, with another strip at one end. A mat with a 4½x6½ opening, glued onto these three strips, serves the double purpose of holding the paper in place and giving a quarter inch white border around the edge of the enlargement, and the paper can be slipped into this kit as easily as into an envelope.

The negative is inserted in a carrier that consists of two pieces of glass, held together by springs. One of these pieces of glass should be matted down to an opening about one-thirty-second of an inch larger than the camera aperture plate. On two sides of this opening should be placed pairs of thin card-

board guide strips, the width of the film apart, in order to keep the film centered. Notches cut in the woden frame opposite the ends of the film guide, permit the film to be slid between the two glasses of the negative carrier without creasing. If a considerable sized roll of negative is to be handled, carriers can be built on the outside of the box near the ends of the film guide.

The use of such an enlarger is as simple as making contact prints from still negatives. The film is clamped between the glasses and held in position by the springs that hold the glasses in place. The paper is slid into the kit and the door at the large end of box buttoned shut. Then the whole enlarger box is picked up and the negative end pointed toward the source of illumination. With a piece of flashed opal glass used as the outer glass or diffuser on negative carrier, the negative may be placed as close to any artificial light as the heat will safely permit. If daylight is used, the negative may be placed facing a clear sky without any diffuser whatever. Using a small arc lamp with beam from condensers just covering film, the latter without diffusion, using an f-3.5 lens, wide open, we have made enlargements from a fairly dense negative on Azo Hard with ten seconds exposure. If prints are not for reproduction, a somewhat rough surfaced paper should be used to minimize the effect of granularity.

If one desires to make a box to enlarge on a different scale, perhaps the easiest way to find the necessary distance from film to paper is to focus with the camera on a piece of paper of the desired size, and then measure the distance from the paper to film aperture of camera. Using the same lens for enlarging, the distances from film to lens and from lens to enlarging paper will, of course, be the same as it was in making the focusing experiment.

Gyro Camera

Recently a New York agent showed me a new English camera, especially designed for use without a tripod. In some respects this camera resembles a previous gyro camera, made in England, designed to be operated by compressed air. The new camera is electrically driven by a small storage battery that can be re-charged at any automobile battery service station. The gyroscope is built on the front of the camera; and, while not larger than one's hand, prevents any sudden shifting of the lens while the camera is in use. Experiments are being made to determine the practicability of this camera for use by an observer in an aeroplane.

Ray Screens

Generally speaking, only the lighter yellow and light yellow-green ray screens are practicable in motion-picture photography, since the deeper screens demand too great an increase of exposure. The proper increase of exposure to be given with any ray screen, on motion-picture film, can only be found by trial. One cannot depend upon the printed instructions that advise, "so many times normal exposure required". A screen that would require but three times normal exposure on a panchromatic plate or film might easily require ten or more times normal exposure on orthochromatic film. The color sensitiveness of photographic emulsions not infrequently vary, one batch from another. The safest practice is to make test exposures with each new emulsion number.

The Shutter Opening

H. R., Chicago, asks: "What shutter opening should be used for photographing rapidly moving automobiles?" Also, "should shutter opening be cut down on very brightly lighted subject, and how much?"

At the normal cranking speed of one hundred and twenty turns per minute, the largest shutter opening that does not give movement of film at picture aperture while shutter is open, is the best to use. The principle is entirely different from that of speed work in still photography. On a subject so brightly illuminated that the exposure cannot be controlled by lens diaphragm, and such are very rare, a light yellow ray screen should be used.

Illinois College of Photography

The faculty of the Illinois College of Photography and about twenty students were in attendance at the Ohio-Michigan-Indiana Photography Association Convention, held at Cedar Point, Ohio, the first week in August.

The picnic at Kanaga Lake, given in honor of the wife of Mr. Hutchinson, instructor of the Retouching Department, was greatly enjoyed by the students.

OUR BOOK SHELVES

"How To Make Portraits"

This, the latest, forms No. 6 of the popular Practical Photography Series. The work is specially devoted to home portraiture, or rather, portraiture in the home, such as the amateur is inclined to attempt, with more or less satisfactory results. With this book, success should be quite certain, as the instructions are most full and complete, supplemented by a wealth of diagrams that should make it almost impossible for the reader to go wrong in applying them. The author, Frank R. Fraprie, S.M., F.R.P.S., editor of *American Photography,* has the faculty of covering the ground in a clear and informative manner, and there can be no question as to his knowledge of any photographic subject. The price of the book is twenty-five cents in paper covers, fifty cents in handsome cloth binding. It can be obtained through most dealers, or directly from the American Photographic Publishing Company, 221 Columbus Avenue, Boston, Massachusetts.

"Cinematography For Amateurs"

This is the latest addition to the well known English series, The Amateur Photographer Library, in which the author, Leonard Donaldson, gives us, in twelve chapters, a very comprehensive outline of what is required in the way of apparatus and "know how" for the production of moving pictures in an amateur way. Twenty illustrations and nearly a hundred pages of text are used without waste in telling how to start, with securing the idea for the film to projecting it upon the screen. The price is quoted as one shilling, sixpence, postage two pence, which would mean sending about forty cents to the publishers, Hazell, Watson & Viney, Limited, 52 Long Acre, W. C., London, England.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Kansas City Camera Club

The year's program of events is being carried out quite successfully, Dr. Maclay Lyon giving an instructive illustrated lecture on Stereoscopic Photography the evening of June sixteenth, since which outings and informal social evenings occupied the attention until Mr. Sarvent's informative lecture on Soft Focus Photography, on the evening of September eighth. October thirteenth, Dr. Seibel will talk on the Autochome Process, showing slides by Mr. Simonds and himself. Speed Photography will be Mr. Tyner's subject on the evening of November tenth, and a new subject will be treated the evening of every second Saturday of the month for the remainder of the year. These monthly talks are well attended and are greatly appreciated by the members and their friends.

The Texas Convention

The Professional Photographers' Association of Texas will hold its convention this year at Houston, from October ninth to twelfth, inclusive. This convention will be different from anything heretofore attempted in Texas, as a model, first class studio, will be run, and run in earnest, just as any other successful studio is being conducted, during the entire four days. A booklet covering all particulars as to prize list, dues, and the like, can be secured by addressing, Felix Raymer, Secretary Professional Photographers' Association of Texas, Austin, Texas.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

George E. Moulthrope, Director Lantern Slide Division, Bristol, Conn.

Edward B. Cowles, Secretary Lantern Slide Division, 11 Oak St., Bristol, Conn.

Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

STATE SECRETARIES

California—A. E. Davies, 695 61st St., Oakland.

Idaho—Eugene Clifford, 902 9th Avenue, Lewiston.

Iowa—Harry B. Nolte, Algona.

Kansas—H. H. Gill, Hays City.

Mississippi—George W. Askew, Jr., 211 34th Ave., Meridian.

Missouri—J. F. Peters, Room 210, Union Station, St. Louis.

New York—Louis R. Murray, 21 Clark St., Ogdensburg.

Oregon—F. L. Derby, La Fayette.

Texas—Emmett L. Lovett, Roby.

Wisconsin—F. W. Freitag, 500 Monument Square, Racine.

MEXICO.

Vice-President—Jose Ramos, Zitacuaro, Michoacan, Mexico.

Album Director—J. Jesus Martinez, Ap. 5, Morelia, Mich., Mexico.

CANADA.

Album Director—R. W. Franklin, Dodsland, Sask., Canada.

NEW MEMBERS

4389—Otto C. Perry, 1917 South Fox, Denver, Colo.
3¼x5½ and 3½x3½, post cards or as requested, of locomotives and a few scenes; for the same. Class 1.

4390—Ernest A. Somerville, Haynes, No. Dak.
Class 2.

4391—Geared L. Cole, R. F. D. No. 3, Glidden, Iowa.
Class 2.

4392—T. M. Skinner, 128 South 6th St., W., Missoula, Mont.
Class 2.

4393—D. E. Baer, 1744 Corcoran St., Washington, D. C.
2¼x3¼ and 4x5, developing papers, of miscellaneous subjects; for outdoor, travel, or anything of general interest. Class 1.

4394—D. T. Mauldin, P. O. Box 173, Munday, Texas.
Up to 8x10, developing papers, of all classes of portraits; for the same. Class 1.

4395—N. M. Almberg, Archer, Mont.
Class 3.

4396—Leon Stusak, 174 16th Avenue W., Cedar Rapids, Iowa.
2¼x3¼ and up to 5x7, developing papers, of views; for anything of general interest. Class 1.

4397—Robert Q. Hill, 519 W. 152nd St., New York City.
3¼x5½, developing papers, of views of New York, street scenes, buildings, etc.; for ranch scenes, views of other cities, and interesting pictures relating to industry. Class 1.

4398—W. W. Tranah, Johnston Building, Chelsea, Okla.
Vest pocket to 8x10, various papers, of general views, oil fields, river, forest, nudes and semi-nudes; for figure studies posed in nude and semi-nude, mountain scenery, ocean and general views. First class work only; retain privilege of rejecting poor work. Class 1.

4399—Benj. H. Graham, 2338 Christian St., Philadelphia, Pa.
Class 2.

4400—Lester K. Miller, Jones, Mich.
Post cards and 5x7, developing papers, of scenery and views; for the same. Class 1.

4401—L. A. Hawkins, Jerome, Ariz.
Autochromes only. Class 1.

RENEWALS

4240—C. Ferris Smith, Colville, Wash.
Vest pocket to 5x7 of miscellaneous views; for anything of general interest. Class 1.

4258—G. S. Wright, Tunnelton, Ind.
3¼x5½ and 5x7, developing papers, of views of Florida, Arizona and Indiana; for anything of equal interest. Post cards only. Class 1.

CHANGES OF ADDRESS

286—Miner W. Tuttle, 49 West 49th St., New York City.
(Was 1116 Amsterdam Ave., New York City.)

1213—A. B. Davis, 335 Parkview Ave., Detroit, Mich.
(Was Sandusky, Ohio.)

2768—Emmett L. Lovett, care Southern Electric Company of Texas, Wichita Falls, Texas.
(Was Roby, Texas.)
Brownie 2A prints and post cards of general views; for the same. Class 1.

4265—Charles Beavers, R. F. D. No. 2, Hartford, Kans.
(Was Highland, Kans.)

4272—M. C. Nordling, 117 Center St., Waukegan, Ill.
(Was Bostwick, Fla.)

4324—Capt. L. S. Ryan, 2040 Benvenue Avenue, Berkeley, Cal.
(Was Ft. Winfield Scott, San Francisco.)

4339—Hayden B. Brubaker, 916 Hill Ave., Wyomissing, Pa.
(Was West Reading, Pa.)

4340—Leo Dillingham, Hq. Northeastern Dept., Boston, Mass.
(Was Manila, P. I.)

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Of Interest To Photo-Engravers

"Collodion and the Making of Wet Plate Negatives for Photo-Engraving Work" is the title of an informative and seemingly exhaustive treatise or handbook, just gotten out by the Eastman Kodak Company. The production of wet plate negatives by simple and certain methods is discussed in full detail from preparing the glass to the stripping of the negative film, followed by several pages dealing with every form of possible defect that may appear. The final chapter, the one dealing with the Eastman Service, should prove, perhaps, the most interesting of all for the isolated worker, or the one desirous of obtaining assistance in any difficulties that may arise in the negative-making part of his work as a half-tone engraver. Copies of this booklet will be sent to any of our readers upon request to the Eastman Kodak Company, Rochester, New York.

A Good Library Paste

Our good friend, R. Stuart Browne, who used to publish the *Mining and Metallurgical Journal,* was in the office the other day when a visitor asked about the making of a good paste. He volunteered to look up a formula that he had published a few years ago, and send it over, as he knew it was good. As we are constantly receiving inquiries concerning paste, here it is, one that we believe will give satisfaction. It reads:

White dextrine, two and three-fourths pounds; water, two quarts; oil of wintergreen, twelve minims; oil of clove, twelve minims.

Bring the water to one hundred and sixty degrees Fahrenheit and stir the dextrine in slowly, taking care not to allow the temperature to vary more than one degree either way until the dextrine has dissolved to a perfectly clear solution. As soon as the dextrine has passed into solution, add the essential oils slowly, stirring all the time. After this has been done, allow the solution to cool and then pour it into bottles and cork. These bottles must then be set aside for a week or two, to permit the paste to congeal. As soon as the paste "sets", it will have a perfectly white color and will possess the firm consistency which is characteristic of library paste. In order to use it, it is necessary to add a little water, and work it around with a brush.

In preparing this paste care should be taken to use the best grade of white dextrine. The whole secret of the process of manufacturing is in maintaining the temperature at one hundred and sixty degrees Fahrenheit. At this temperature the dextrine undergoes certain peculiar molecular changes, and any serious variation from it results in a very inferior product.

"Emergol" Established

Having now had three years of the most exacting and severe test, that of continued everyday use under all conditions, by the photographic trade in general, "Emergol" is offered with full confidence as being the nearest approach to the German "Agfa" Metol. While suitable formulas are given with the product, it has been found to work most satisfactory when used in like proportion as given in any formula calling for Metol. If your dealer should not happen to have it in stock so that you can give it a trial for your own satisfaction, you can no doubt find a near dealer that will supply you, or by writing direct to the Berlin Aniline Works, 213 Water Street, New York City.

Photographic Specialties

"Flashlight and Other Photographic Specialties" is the title of a handsomely illustrated catalogue, just gotten out by James H. Smith & Sons Company, 3541 Cottage Grove Avenue, Chicago, Illinois. We all know that this firm manufactures Victor Flash Powder, but not all of us know of the dozen or more other specialties that the firm is putting out; at least, we do not

know about all of them. Send for a copy of this catalogue and find out. Even if you should not wish to add to your stock of photographic material and supplies, the book will be found most interesting on account of the many fine reproductions of flashlight pictures that it contains. Drop a line to the name and address as given above and a copy will at once start in your direction.

A Catalogue of Bargains

We are in receipt of the new catalogue, entitled "A Thousand-and-One Camera Bargains", issued by the Bass Camera Company of 109 K Dearborn Street North, Chicago, Illinois. Aside, of course, from the usual functions of a catalogue, this one has been compiled with the special purpose in view of aiding the amateur to obtain high grade cameras and photographic accessories at a saving in price, consistent with quality. In the section devoted to accessories the items are listed alphabetically, this new idea in catalogue compiling making for added convenience. The catalogue is a very full and complete one, the line of photographic papers, for example, embracing the complete Eastman, Ansco and Rexo products. Copies of this catalogue will be gladly sent to any of our readers who may drop a post card request to the firm, and as the Bass Camera Company has a reputation for fair dealings, we feel sure that orders entrusted to them will be handled to the entire satisfaction of anyone favoring them therewith.

More Northern Light Portraits

On the last page of this issue will be found a Northern Light advertisement which should be of interest to all portrait photographers. It contains illustrations of the interior of the studios of four of the best known photographers in the United States: Garo, Goldensky, Dudley Hoyt and Henry Havelock Pierce, men who have adopted the Northern Light. The illustrations show the manner in which the light is being used in these studios, as well as showing four characteristic portraits made by these photographers. We would advise our readers to send for the complete illustrated Northern Light catalogue, which will be mailed free to any address; or, by sending fifty cents in stamps, a portfolio of six beautiful 8x10 portraits, made by well known photographers with the Northern Light, can be secured. These are original photographs. Address the Simplex Photo Products Company, Richmond Hill, Long Island, New York.

A Possible Danger

A recent visitor, one of our local commercial photographers, asked me if it had ever been noted that bromide or gaslight prints, if held for some time before developing, lost part of the exposure effect; in fact, were prone to appear as if underexposed? We have never seen this stated in print, but believe we have heard it mentioned before. Whether this is really a fact or not, we do not feel capable of saying, but our visitor assured us that it was his experience and there must be some foundation for his belief. Any of our readers who have experienced like results might advise as to the matter; in fact, it would not be a difficult matter to make a test by exposing two sheets of paper, and then developing one immediately in a standard developer, and holding the next for like development the next or next following day.

Illinois College of Photography

As a patriotic move, the Jensen-Raymer studio of Austin, Texas, is making a free photograph of any young man who has enlisted for military service. The junior member of this firm was for a number of years a member of the I. C. P. faculty.

Almost every week we learn of some former student enlisting in either the army or navy. Information has just reached us that Shelton Morris, '17, of Petersburg, Kentucky, has joined the army as an electrician in the Signal Corps.

Russell Penlase, of the class of '17, is now located at Fort Riley, Kansas; occupation, photographer. W. H. Woching, serving in the army, is also at Fort Riley.

A son was born on August twenty-one to Mrs. and Professor C. W. Dishinger, former instructor of the Printing Department.

The Sixth Annual National Old Trails Road Association met at Effingham, on August thirtieth, and perfected plans for the acceptance of Federal aid in building a hard-surfaced road, one hundred and seventy miles long, across the State from East St. Louis to Terre Haute, Indiana.

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CAMERA CRAFT

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CAMERA CRAFT

A Photographic Monthly

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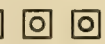

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THE CAVE SPRITE
By ARTHUR F. KALES

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV NOVEMBER, 1917 No. 11

Making Better Pictures

By Walter G. Bateman

Illustrations by Carl Thayer and Chas. L. Snyder

It seems quite obvious that the photographer, be he one with an inexpensive Brownie and little or no experience, or one having an expensive outfit and several years' practice, must, if he reads a photographic magazine, confess that he is desirous of improving his work. It must follow then, that instead of owning up to my doubt as to the number I can interest (as so many do by saying that they will feel repaid if one reader is helped); I, with every reader interested in my subject, should have no such misgivings. If I fail it will simply be because I lack the knowledge or the knack of imparting it. But I feel I can at least inspire an increased desire for knowledge that will help one to improve his work, and even that will be no small an achievement.

One should first have a clear understanding as to the lines along which improvement is desired. One worker may feel that he should improve his judgment as to exposure, development, and the like, to the end that a larger number of perfect negatives result from his efforts. Another may have somewhat mastered this part of the work, yet desires to make his productions, as a collection, more interesting to his friends by a more judicious selection of subjects. A third may wish to achieve success as a pictorial worker, and still another may be ambitious to succeed along one of several other lines. Not infrequently the worker is impelled along all of these lines, generally progressing from one to the other in successive stages, so we will begin at the very first, the making of fairly uniform correct exposures.

There is really little or no excuse for losing a negative through wrong exposure on ordinary subjects, such as ninety-nine out of every hundred expo-

sures embrace. The average plate or film has a latitude that will take care of a fifty per cent variation quite nicely, but this does not lessen the importance of trying to be as correct as possible. There are many good exposure meters and the like on the market; in fact, any of those offered by the dealer are a decided help. But, they should be used intelligently; or, rather, used along with the employment of some intelligence. As one comes before a scene that he wishes to photograph, the meter is consulted, one-tenth of a second determined upon, and the exposure given. It turns out that the time was too short. It is not enough to simply say that the meter failed us or that we did not use it rightly. We should go over the several operations involved in using it and see if we estimated each factor correctly. If we find we did and another exposure on a like subject is also under-timed, we can assume that the meter gives us too short readings and in the future make allowance therefor.

On the other hand, we may find that we were a little in doubt as to whether to call the particular scene in question an "open" or an "average" landscape, so called it an open one. Here a mental note should be made that in future, when in doubt, the "average landscape" factor should be used. And so with any other factor involved in the setting of the meter or the scale. If one will do this, re-travel the path leading to each exposure determination, in the light of the result as shown in the negative, he will not require much practice to enable him to use his exposure calculator with uniform success; in fact, the plan rightly followed will soon make him practically independent of any mechanical device in all, except unusual cases where there is no previous like experience to have taught the right procedure.

Assuming the problem of exposure mastered, one must realize that what we might call correct exposure is not always the most desirable. Today we may wish to portray a bit of woodland in such a way as to bring out the wealth of detail in the varied foliage, the bark of the trees, the ferns at their base, the trees in the distance, and all such material composing the picture. Tomorrow we may wish to catch the impression that a different lighting gives us, that of shadowed mystery, pictured in broad masses that disregard entirely all the details except those in strong light, where the detail indicates only the better illumination, not the principal charm of the picture. The former demands a full exposure; the latter one that is a little short. And again, one should bear in mind the developer he is using. The average developer is one calculated to bring out about all that a short exposure will give on a plate or film. If the alkali is decreased or the sample used is of the supposed strength, a little longer exposure will be required. The same results if the solution is used when of a lower temperature than usual.

And this last covers about all there is to development. Our developer should be mixed up accurately, chemicals of known strength used, the proper temperature maintained; and then, with anything like correct exposure, development becomes merely a matter of a certain number of minutes in the solution, this to be determined by an experiment or two, or by employing some "time and temperature" formula, and following the instructions carefully. If results are not satisfactory, we should first ask ourselves if we are quite sure the exposure was fairly correct. This we may learn from the negative. Standing in front

THE ROADWAY AT THE CREST OF THE HILL By CHARLES L. SNYDER

of and facing a north window, we hold the negative in about the position we would hold a mirror below our eyes if we wished to see therein the image of an aeroplane flying fairly low in the sky outside. If a positive image is seen on the emulsion side of the negative and not on the other or glass side, under-

AN EVENING IN LATE AUTUMN By CHARLES L. SNYDER

exposure is indicated. If seen on the glass side only, over-exposure is the verdict. If seen alike on both sides or on neither, correct exposure can be assumed. A little practice will enable one to make this test in almost any light, the idea being to have the strongest light on the surface under examination with a weaker light behind and below. In the case of a subject having excessive contrast, say a waterfall in a deep glen, the water will show itself to be over-exposed, while other portions of the view, perhaps all else, will show the positive effect only on the film side, indicating under-exposure.

This brings us to another point, namely, the fact that there is really no absolutely correct exposure. The glimpse of sky above our waterfall, and perhpaps the water itself, requires only a fractional part of a second exposure; while, on the other hand, no small part of the shadowed glen surrounding them would require several seconds, perhaps a full minute. Except in the case of copying black and white subjects, such as maps and drawings, and in a lesser degree in the case of what are called bird's eye views, exposure is a compromise between the requirements of the different parts of the subject. As the contrast increases the range of this compromise increases. We can convince ourselves of this by exposing a few plates or films on, let us say, a roadway through a wood or a waterfall in a wooded glen. With the same stop we give four or five exposures, starting with what we think is about right, and doubling the time as each is made. Two, four, eight, sixteen and thirty-two seconds would be about right, and the results would not only confirm my contention as to the difficulty of over-exposing such subjects, but would justify my claim that the latitude of the emulsion takes care of considerable variation.

Exposure and development well under control, the matter of increasing the interest of our pictures becomes important. To achieve this result it is not necessary to travel the country over in search of the odd and impressive. Let us look through the magazines and see what the editors select as appealing to their readers. You will find that pictures in the form of a series are frequently shown. Let us take up some particular line of work and make our own series of related pictures. Suppose that instead of showing our friends a miscellaneous collection of "views", we were to show them an album that pictured, for example, every bridge in the immediate neighborhood. The large one used by the railroad in crossing the river that bounded our country, the two or three that the state highway boasted, those spanning the streams intersecting the ordinary country roads, the ornamental structures in the nearby city park, even the primitive foot bridges that have to be searched out along the paths and by-ways of the countryside, could all find a place. Who would not find much to interest in such a collection, particularly if a resident of the vicinity. Take the birds, the flowers, the farm activities, the conveyances, even a collection made up of the widely varying gateways to all classes of residences within easy reach, would be interesting.

And in making these pictures, or rather, pictures along such a definite line, the worker's own interest is multiplied. He has an aim, each new picture not only has a value, but it increases the value of those already secured. One cannot only enjoy adding to his collection, but he can, as opportunity presents and added experience suggests, go back and improve upon earlier efforts by

A PATHWAY THROUGH THE SNOW — By CARL THAYER

making new negatives of the least unsatisfactory subjects. And, best of all, the series early assumes a value; there is no waiting for a completion, such as too often makes the maintaining of an effort irksome. Planning one's work along some such lines has much to commend, I feel quite sure the reader will agree.

As to making one's work more artistic, advice that is generally applicable is practically out of the question. Being artistic, making pictures having pictorial quality, is, I fear, much a matter of temperament. If one cannot appre-

A WINTER SUNSET — By CARL THAYER

ciate the aims of those who do achieve some measure of success along this line, there is little chance of his producing work having much pictorial quality. The worker who imagines that a "fuzzy" effect is artistic, just because it is lacking in sharpness, as well as the one who is quite sure that the man who shows pictures with most of the subject out of focus, is suffering with some form of eye trouble, can hardly have any appreciation of what the pictorialist is striving for. Making pictures with a soft-focus lens does not make them artistic; but, to render some subjects in an artistic manner, the effect secured with such a lens may be a decided aid. Pictorial photography is not a matter of making something "freaky", using a soft-focus lens, printing through bolting cloth, putting the point of interest away up in one corner of the picture space, or anything like that, although something along these lines is often employed by pictorial workers to secure a certain effect or bring out some desired quality. Were I competent to discuss the subject to the readers' advantage, the small space at my command is hardly sufficient for the futile floundering that generally results.

One can, however, even if not quite able to understand the out-of-focus methods of the advanced pictorialists, at least learn to avoid some of the most glaring offenses against good taste in his compositions; the so-called "rules" of art being little else than a proper concession to the demands of good taste, the latter being closely akin to being artistic. If we assume that the picture space enclosed within the dimensions of our plate or film, or better, the finished print, be the framing of a small window through which the scene to be pictured is viewed; we can, by imagining just what we would see through such a window when the eyes were unconsciously brought to the most desirable position opposite, learn much of composition.

For example, were the scene being observed a sunrise, the tendency would be to bring the eye at such a height that considerable sky was in evidence above the sun in order that its upward course could be watched; while, in the case of a sunset, the tendency would be to raise the position of the eyes and permit more foreground to be seen. Take two like sunset or sunrise prints and try the effect of trimming one mainly from the top and the other from the bottom, and then study the result. The first will suggest that the sun is sinking, as befits a sunset picture, while the other will have every appearance of being a sunrise effect. If, from inside a room we watch an object moving across the field of view outside our small window, the tendency to move the head, that there is always more space in front of the object than behind, is quite pronounced.

And, just as the head is instinctively moved to the position in which the frame of our small window denies us the least, so the boundary lines imposed by the edges of our finished prints should not cause us to feel that something we wish to see is cut off thereby. We should also, in filling our picture space, remember that it is almost equally poor taste to include any material that does not serve any good purpose in giving pleasure to the mind through the eye. If there be, at one side of our picture, an extended mass of uniform quality and interest, trimming away all except enough to well suggest the mass, as such, is advisable. Leaving it out of the picture in making the exposure is even better. If a distinct line runs from side to side through the view, as a stream through an open stretch of country, one is impelled to move the head from side

to side, so as to be able to follow the line as far as possible, the movement being such as to suggest the necessity of a narrow horizontal as the proper form for a picture of the scene. But, following out this idea being impractical, we find that, if the line of the stream be broken here by a small stream, there by a clump of trees, the desire to trace the line through a great length ceases and the eye finds interest in some smaller portion. This tells us that such lines across our picture space should be broken up, this breaking up serving to make the abrupt break at the edge of the print much less objectionable.

THE EVENING OF LIFE By CHARLES L. SNYDER

A mountain is the subject that presents itself outside our hypothetical window. The eye cannot focus itself upon the immediate foreground and the distant elevation at the same time; in fact, the mind does not attempt to interest itself with both at the same time. The inclination is to remove the head to a greater distance from the window and enjoy the scene with the top of the mountain quite close to the top of the window, this suggesting the proper "graming" of the view in making the exposure, as well as suggesting a long-focus lens. Let the scene outside be an open meadow or an expanse of any kind that conveys a feeling of open country and the unconscious adjustment of the position of the head would be such as to give not only the immediate foreground, but a generous view of the sky above.

Not only does this adopted position of the eyes, as related to the scene viewed through an opening, suggest treatment, but we must not strain this application too far. In picturing our flat and expansive landscape, it is obvious that a low standpoint will suggest, in the finished picture, that the artist was himself located on an extension of such level territory, while a high view point, such as our window implies, would suggest the proximity of an elevation, and to that extent minimize the effect that we wish to convey. If our view of the mountain includes but little foreground, the proximity of another elevation is suggested; while, on the other hand, a generous presentation of foreground implies that the artist viewed the mountain from a plain and that the former rises and stands alone.

From these examples it will be seen that much of what we call composition is merely trying to present in the picture what the eye and the mind selects when allowed to choose. We might go further and say that what we call pictorial work, photographic art, is the result of an effort to present what these two would select or accept with the mind, the imaginative mind, predominating in the choice, but so doing would be venturing again upon dangerous ground.

Returning to our question of composition, and still maintaining that it is based upon what the eye would select as most pleasing, let us take up the matter of spacing. As a Scotch plaid is more pleasing than a uniform checker-board effect, and an equally varied design in curved lines more pleasing than one made up of straight lines only, it is suggested that our picture space should be divided, by the lines of the picture, into spaces of such varied sizes and forms as to make them pleasing. Look through your prints and try to find one in which the spaces lack variety and yet produce a pleasing effect, and I think you will be disappointed.

Another point we should bear in mind, and that is that in portraying a landscape or other scene, we have very little power in the way of differentiating the different planes, foreground, middle distance, and distance. For that reason we should avoid leaving out any of these planes, as the proper perspective is destroyed. Again look over your pictures and see if you can find one that is satisfactory and yet fails to show at least a glimpse of the extreme distance. See if you can find one that, through an intervening depression, is innocent of a middle distance, and yet satisfying. This, of course, does not hold in the case of the pictures having for their subject some simple foreground object that is the principal subject of interest, but to what are generally termed landscapes or views.

But to continue is but to invite the editorial blue pencil, if not a more drastic punishment, so I will desist. I trust I have at least interested my thousands of readers, if for no other reason than as a justification of the enormous amount of time, taking that of them all together, that I have consumed. If not, my regrets, tempered with the thought that while the aggregate time I have wasted for my readers is appalling, the individual has suffered but little in comparison to the good I hoped to have done.

Light and shade are capable of producing many results; but, the three principal are relief, harmony and breadth. By the first, the artist is enabled to give his works the distinctness and solidity of nature. The second is the result of a union and consent of one part with another; and the third, a general breadth, the necessary attendant on extent and magnitude. A judicious management of these three properties is to be found in the best pictures of the Italian, Venetian and Flemish schools, and ought to employ the most attentive examination of the student, for by giving too much relief, he will produce a dry, hard effect; by too much softness and blending of the parts, woolliness and insipidity; and in a desire to preserve a breadth of effect, he may produce flatness.—JOHN BURNET.

The Toronto Camera Club Salon

By J. Addison Reid

With Reproductions of Some of the Pictures

Every year for twenty-six years, the Toronto Camera Club has held an exhibition of pictorial photography. The exhibition of 1917 was undertaken with considerable misgiving, but with much courage. Three years of war have made their influence painfully felt in the club's affairs. Many members are absent overseas; many are in other parts, owing to circumstances resulting from the war.

Instead of being discouraged, the committee planned a more ambitious programme than ever, and took the exhibition from the club's own rooms to the walls of the Art Museum of Toronto. The results justified both their courage and their choice of place. Five hundred and forty prints were submitted and two hundred and sixty-nine were hung. The jury of selection and award consisted of two Royal Canadian Academicians, G. A. Reid, principal of the Ontario School of Art, and C. M. Manly, and two photographers of high standing, Charles Aylett and Captain S. T. Bartlett.

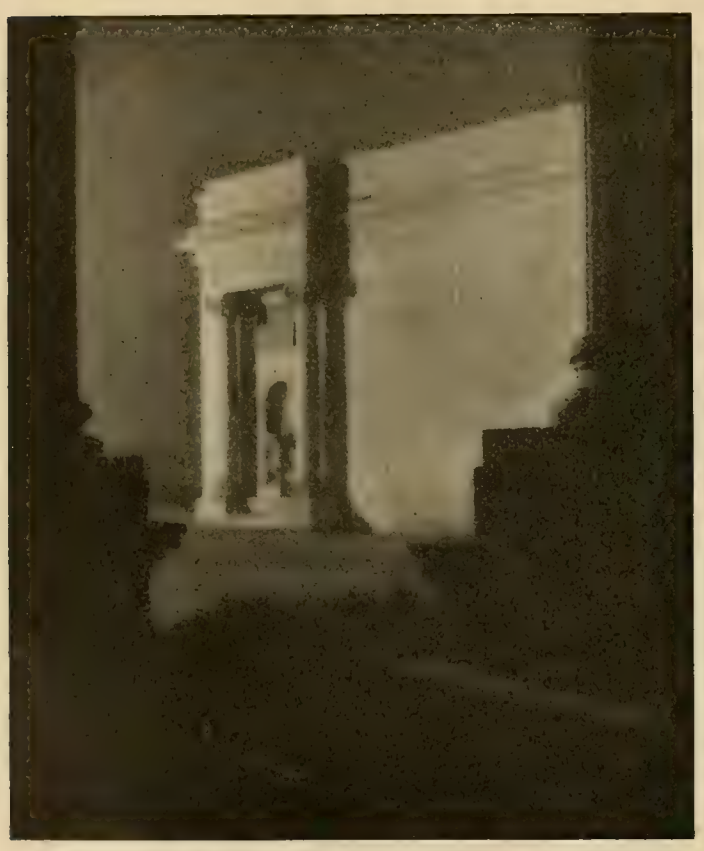
The outstanding feature of the exhibition was the leading place taken by

PORTRAIT: "MISS ST. P."
By JAMES N. DOOLITTLE
GOLD MEDAL

THE LURE OF THE STREAM
By JAMES N. DOOLITTLE
SILVER MEDAL

California, both in point of the number of prints hung and the capture of awards. Naturally the Toronto Camera Club stood first in the number of exhibitors, twenty of its members being represented by eighty-five prints; but twelve exhibitors from California had ninety prints hung, and but few of the prints submitted from that state were rejected. The gold medal for the best picture in the exhibition, three silver medals and five bronze medals went to California, as well as eleven honorable mentions.

The gold medal was awarded to James N. Doolittle, of San Francisco, for a portrait entitled "Miss St. P.", and also the silver medal for the best landscape, a print entitled, "The Lure of the Stream". Another of Mr. Doolittle's landscapes, "Hills of California", received honorable mention, as well as another portrait and a genre study.



MOONLIGHT (SILVER MEDAL) By W. H. RABE

Needless to say, the awards did not in every case meet with universal approval, and Mr. Doolittle's gold medal picture came in for a great deal of criticism. Unquestionably it was a very beautiful and charming portrait, a full female figure seated beside an interesting bit of vine-clad trellis. The latter did not form a background. Only the faintest suggestion of a line seemed to carry it behind the figure. In reality it was a competing object. The picture could have been cut in two vertically, separating the figure and the trellis, and each part would have made a complete and pleasing picture.

One of the most interesting series of pictures to study was a set of eight prints by Edward Henry Weston, of Tropico, all portraits, and each representing a study of unusual, though pleasing, lighting effects with direct sunlight. His portrait of Miss Dextra Baldwin won the bronze medal in that class.

Ernest Williams of Los Angeles had fifteen prints on the walls, one of

SUNBEAMS
By G. H. S. HARDING
BRONZE MEDAL

PORTRAIT OF A BOY
By G. H. S. HARDING
BRONZE MEDAL

them, "Dawn", winning the silver medal in the genre class. In this, diffusion seemed to be carried to its utmost possible limits. It showed a female figure in an open field, presumably greeting, or welcoming, the dawn. It possessed all the haziness and uncertainty of dawn, although one observed photographic defects that would have been all too apparent had the subject been rendered with any greater degree of definition. Two of Mr. Williams' other pictures, "The Peristyle" and "Sun Glints", won honorable mentions. Mr. Williams' pictures, like those of Mr. Weston, showed a distinct method of work, although to my mind, Mr. Weston's is the more commendable. He worked definitely and successfully for the rendering of sunlight in portraiture, while Mr. Williams' efforts in many cases seemed to be directed toward producing a certain style of print. In six of his fifteen pictures he produces effects extremely delicate, not to say anemic. The negatives were evidently exposed and developed for extreme softness, and the bromide prints developed in very weak developer so as to accentuate as far as possible the effects desired; and all this irrespective of whether or not the process suited the subject. Some of these subjects were landscapes with considerable distance between near objects and those in the background, and the printing process succeeded in completely eliminating all trace of aerial perspective. On the other hand, five pictures were examples of printing for vigorous effect, and here again one felt that the choice was not always happy.

W. H. Rabe of Oakland had eleven prints hung, and won the silver medal in the miscellaneous class, for a print entitled, "Moonlight", as well as an honorable mention in the landscape class. One of his pictures, entitled,

"The Laurel Grove", was an example of a unique, though perhaps seldom successful, style of composition. "Triangulations" would have been a suitable title. The central feature of the picture was a sunlit opening in the grove, enclosed by a triangular arrangement of the tree trunks and the ground. This triangular form was repeated a score of times all over the picture, separately

PORTRAIT: MISS DEXTRA BALDWIN
By EDWARD HENRY WESTON
BRONZE MEDAL

"DAWN"
By ERNEST WILLIAMS
SILVER MEDAL

and interlinked with each other. This was one clear case where the interest of the arrangement of the lines transcended the interest of the subject; and since the arrangement was not unpleasing, as it would have been with less skilful treatment, this was undoubtedly a successful pictorial effort.

Many others of the California exhibits were worthy of especial mention, notably the pictures of G. H. S. Harding of San Francisco, who, with four prints, won honors in three classes, two bronze medals and an honorable mention; and also those of Arthur F. Kales, of San Francisco, who had ten pictures hung and who won a bronze medal with his picture, "The Cave Sprite" (used as our frontispiece), and two honorable mentions; but their very versatility makes comment within the space available more difficult.

Another feature in which it was observed that the California exhibit held the leading place, was in the matter of the mounting of the prints. The California men had not only the artistic skill to make pictures of the highest artistic merit, but they knew how to display them to the best advantage. As photography has become one of the leading industries of California, it is pleasing to know that it is also proving a leading medium for the exercise of the artistic impulses of its people.

Choosing the Right Time

By Charles F. Rice

With Illustration by the Author

"There's a time for laughter and a time for tears", according to some wise person. Also, I should say there's a time to take a photograph and a time when it's better to save your ammunition for a more favorable occasion. I am moved to make these remarks by a request from one of my correspondents who sends a photograph and asks me what is the matter with it. There are several faults in this photograph, but I believe the main trouble is that the exposure was made at a time of day when the lighting was very unfavorable. I am not at liberty to publish this particular photograph and my letter of advice, having special reference to the picture, would be of little interest without it. But the matter furnishes me with the text for a brief contribution to these columns, though not in the usual form of a letter.

Lighting is of such importance in portraiture that the professional studio is equipped with a great variety of shades, screens and reflectors, so that the photographer has the light entirely under his control. If he knows his business he can light each subject to the best advantage, placing a little accenting sparkle of high-light on the feature that will stand it, and subduing in shadow the feature that otherwise might be obtrusive. The sitter with bulging eyes does not get the same lighting as the one with eyes set deep in the head. The direction of the light, its volume and its intensity are all considered and intelligently controlled to get the best result.

Outdoor photographs, landscapes, buildings, etc., demand just as careful consideration of the lighting. Here we cannot control the light with shades and screens, and so must wait until the natural lighting best suits the subject in hand. Out in the open there is also the matter of atmosphere to be considered. The same landscape from the same point of view may show very different aspects, depending entirely upon whether the air is clear or hazy; whether the sun is shining brightly, partly obscured, or wholly shut off by clouds.

Some pictures must, of course, be taken on the instant or not at all. But to be assured of the best possible photograph of a particular view, it is always advisable to observe that view at different hours of the day, with sunshine and without, before making the final exposure. A series of pictures of the same subject under varying conditions of light is often very interesting and instructive.

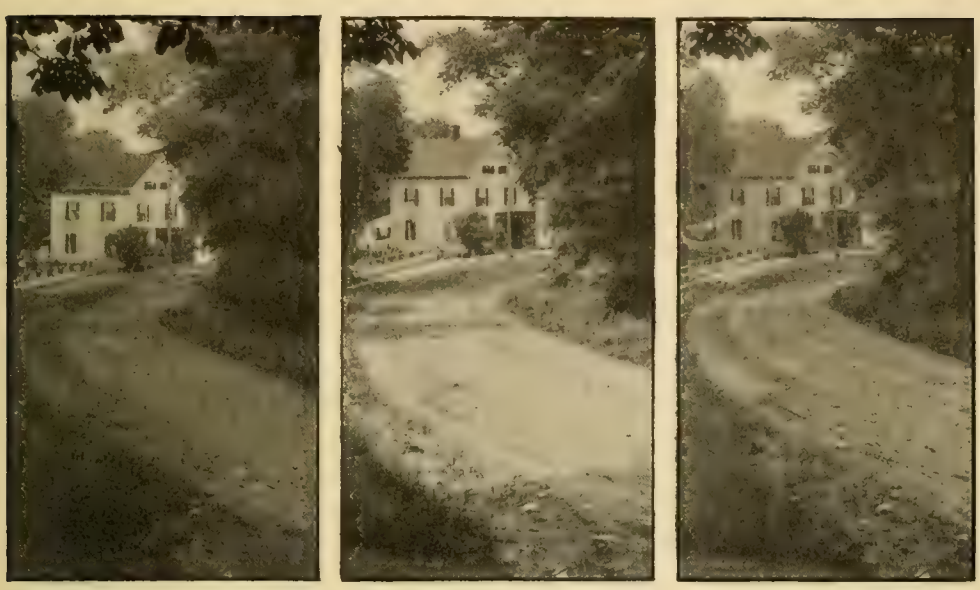
Side lighting gives roundness and relief. Demonstrate this to yourself by holding up a half dollar so that the light strikes its face from the side at a very oblique angle, and see how the design stands out. Then turn it so that the light strikes it square and full and see how flat it looks. The same prin-

ciple applies generally to any object we wish to photograph, and particularly to buildings and architectural studies. In the case of the coin, we turn it about so that the light strikes it from the right direction. In the case of the building we cannot so easily manage either the subject or the light, but we can wait until an opportune moment. Even buildings facing due north get the sunlight early in the morning and late in the afternoon, in the long days of June, unless trees are in the way.

Just as extreme flatness is the result of the light coming from directly behind the camera, so the utmost accent and relief is obtained by working with the light well at the side, as in the case of the coin. Sometimes a building will have its front almost innocent of architectural features and in a photograph appear still more flat and uninteresting. Photographed when the sun just catches the few small projections and sets them off with long shadows across the front, the improvement will be most gratifying and some fine landscape effects are obtained by working against the light. And while there are certain technical difficulties involved in this method of procedure, yet it is frequently possible to secure very striking and beautiful pictures with the sun shining almost directly from the front.

The play of sunlight and the quick change of lighting effects may be particularly well observed in a woodland glen, where the sun pierces the shadows in long shafts of light, very much like the operation of a spotlight in the theatre. I remember on one occasion when in the woods, a bunch of tall ferns attracted my attention from the very theatrical way they were lighted by a bright beam

CLOUDY—ONE-HALF SEC. F-11.3 ONE-TENTH SEC. F-6.8—SUNLIT
BOTH MADE WITH NINE AND ONE-HALF INCH GOERZ DAGOR LENS ON 4x5 ORTHO PLATE AND PORTION ENLARGED TO 5x7 ON ENLARGING CYKO



MORNING—6:45 A. M. NOON—11:45 A. M. EVENING—5:30 P. M.
TAKEN IN JULY, ONE-TENTH SECOND EXPOSURE AT F-6.8 ON ROLL FILM

of sunlight, all the surroundings being in deep shadow. I realized that here was a striking picture, so I set up my camera and within two or three minutes I had made the exposure; and not any too soon, for hardly had I replaced the slide in the plateholder before the sun had left the ferns for the rest of the day. So it is in greater or less degree with almost every view. There is one best lighting for it, and unless we take care to observe and act at the right time we do not get the best possible results.

I said before that we cannot control the outdoor light with shades and screens, as the photographer manipulates his studio accessories. But the play of sunlight through the clouds on a landscape is sometimes very much like the way in which the studio light is directed on the sitter. In the case of the landscape we cannot do any directing. We can only hold ourselves in readiness, hoping that a fortunate rift in the clouds will allow the sun to accentuate that feature of the view which needs such emphasis, and if it does, to act on the instant. The way in which a scene may be transformed by unusual conditions of light and atmosphere was impressed upon me very strikingly one hazy autumn day, on the ferry crossing New York Bay from Staten Island. New York's towering skyline could barely be distinguished through the haze, when the upper air cleared somewhat and the rays of the setting sun lighted the tops of those buildings in a golden radiance. The lower part of the buildings and shore-line was still completely obscured in haze, and the effect was that of a celestial city, of castles in the air, having no connection with this earth. This effect, which was beautiful beyond description, lasted for only a few moments. I regret that I did not take a shot at it with my pocket camera, though I judged at the time and still believe that it was no fit subject for a roll film pocket camera. What it really called for was a panchromatic plate and a ray filter that would give full color correction.

In case of doubt, take a shot anyhow. One exposure wasted isn't much, and it may result in a picture that you would never again have the opportunity to secure, as in the instance mentioned in the preceding paragraph. Then if more favorable conditions are presented, make another exposure. A comparison of results will be interesting. There's so much uncertainty about photography, no matter how carefully our work is planned and executed, that we do not always secure in the finished print the exact effect we had in mind at the time of making the exposure. And it is just possible that the exposure made when you believed the time most propitious will be less satisfactory than the one made under apparently unfavorable circumstances.

Illustrating how the final result is not always quite what we expect, is my experience only the other day in photographing an Italian vase or urn which had just been erected in a little park nearby. I followed out my own doctrine of looking at the view under different lighting effects before making an exposure, and I decided that the sun would be right at nine o'clock in the morning. The next morning at nine o'clock I was on hand. But the sun was not! However, as it looked pretty good without the sun I went ahead and made an exposure. A few minutes later the sun came out, and I made another exposure. And the one with no sun is the more satisfactory picture, on the whole, because I had been wrong in my notion of how the green foliage in the background would contrast with the color of the marble vase.

To go with this article I have made three photographs of a simple little scene of a shady road with a white house in the distance, at morning, noon and evening. This particular view always appealed to me in the early morning, when the road was in shadow and the building was flooded with light, and I submit that there is something attractive about that picture. The others are rather commonplace.

Confining ourselves then to the one factor of light, we see that it is well to consider when the lighting is best before we photograph a view, and if in doubt, to make exposures under different lightings. As when we go strolling about the countryside in search of pictures, we should plan to cover the same territory on different occasions at different hours of the day, if we would make the most of pictorial possibilities.

To secure a good general form in composition, it is necessary that it should be as simple as possible. A confused, complicated form may hide the art, but can never invite the attention. Horace, in his Art of Poetry, inculcates the same doctrine, *Denique sit quod vis, simplex duntaxat et unum.* Whether this is to be produced by a breadth of light and shade, which is often the case with Rembrandt, even on a most complicated outline, or by the simple arrangement of color, as we often find in Titian, or by the construction of the group in the first instance, evident in many of Raffaelle's works, must depend upon the taste of the artist: It is sufficient to direct the younger students to this particular, their minds being generally carried away by notions of variety and contrast.—JOHN BURNET.

The Charm of the Stereogram

By Dr. Maclay Lyon

With Illustrations by the Author

We have all of us wondered why the "average amateur" sees so much in his pictures, pictures lacking in both artistic quality and interest for others; but, there is a good reason for his seeming partiality towards his own productions, his memory of the scene supplies the charm that the lack of perspective denies us who were not present when the view was taken. From a countless number of points in the Yosemite Valley, for example, the view extended before the eyes is magnificent and inspiring; but, an ordinary photograph conveys little of this to the beholder who has never visited this wonderland. The view or vista from your seat in your own garden, or the one from some particular bench in the city park, may be most charming, but when all the different planes are compressed into the one flat rendition of a photograph, the result is almost sure to be an arrangement of lines and masses that is displeasing. But, these same scenes, rendered stereoscopically, have the charm of the view itself, for the one who sees only the picture, as well as for the photographer, and therein lies the great advantage of the stereogram.

The three pictures I am sending herewith are good examples in point. All, I believe, are entirely lacking in what is called composition or pictorial quality, considering them as ordinary pictures to be viewed in the ordinary way. One could hardly determine which is the "right way up" of the view through the trees, the bars of the cage spoil the second, and the last is hardly a successful bit of grouping, but look at all three through a stereoscope, as you can easily

VIEW THROUGH THE TREES

By DR. MACLAY LYON

do by holding the respective pages in position before the lenses, and these faults disappear or become merits instead.

Views having unusual perspective are rarely attractive in a single picture, but they become interesting when seen through the stereoscope. This is especially true of those taken from a height. The "View Through the Trees" is an example of this kind. Viewed in the usual way it appears dull and uninteresting; but, seen through the stereoscope it shows a wealth of perspective, and the jumbled effect is no longer objectionable. As an exaggerated example, a view taken down a well, such as I once saw, was practically meaningless as a simple photograph; but, viewed stereoscopically, proved very interesting, particularly when the stereoscope was held downward, so as to increase the realism. I might add, for the benefit of those who might wish to try something similar, that the sides of the well, lined with bricks carrying mosses and lichens, were illuminated, during the exposure, by reflecting sunlight downward thereon with a mirror held in the hand.

Some very interesting effects are obtained by making stereoscopic pairs of distant objects with the foreground eliminated, by the so-called "giant stereogram" method. For these a single camera is just as well adapted as a stereoscopic one; the requirement that there be no movement in the field holding good in any case. One exposure is made from a given point, the camera moved from fifteen to twenty feet to one side and the other exposure made. With the single hand camera, two separate exposures are made, but with the stereo camera, one lens is capped for the first exposure, and the other for the second. The resulting pictures, when mounted and viewed in the stereoscope, show distant objects having an unusual roundness that is not secured with the ordinary separation of the lenses in one camera. An interesting stereoscopic picture of the moon has been made by exposing two plates upon the subject, with cameras

TIGER AT SWOPE PARK
By DR. MACLAY LYON

located, one on the Atlantic, and one upon the Pacific Coast of our country. The theory of the matter is that the separation of the two lenses should be in proportion to the distance of the object photographed. In the case of a very near object the separation should be quite a little less than the standard used on most stereo cameras. If one will take, with a normal separation of the lenses, a stereoscopic picture of the inside of a shallow box or dish, it will appear as having excessive depth, appear almost as a tube. Some of the better cameras are so arranged that the distance between the lenses can be altered somewhat for near or distant objects.

In making the older professional stereograms, small diaphragm apertures were invariably used, with the result that there was a wiry sharpness of the entire scene, at all distances. At that time there were no anastigmatic lenses, and the advantage of subduing the background was not so well understood. Contrary to the advice sometimes given, it is often advisable to open up the diaphragms, focus on the near principal object of interest and allow other planes to be diffused. This will, in many cases, give a more pleasing effect in the stereoscope than would be imagined. Objects that would otherwise have no form or prominence will be given importance and added interest. An example of this may be seen in the stereogram of Miss Edith Storey, the movie actress. Here the figures appear just as the beholder would look at them, with the brain hardly conscious of the detail back of the figures upon which the attention is centered. The reader will also notice that the contrast between Miss Storey's brightly lighted face and that of the man a little to the rear is not objectionable in the stereoscope, as it is in the picture, the position of the figures, brought out stereoscopically, making the difference seem quite natural. The picture was taken with a pair of six and a half inch lenses opened to f-6.8. Of course, where the middle distance, and even the distance, forms an important part of the picture, as in the "View Through the Trees", sharpness should be main-

MISS EDITH STOREY AT UNION STATION

By DR. MACLAY LYON

tained; but, for subjects having all the interest in one plane, the use of a large stop with selective focusing is worthy of consideration. I have tried one or two of my accidentally made "fuzzytypes" in the stereoscope, and found they were not so disappointing as I expected, despite the fact that the subjects were hardly suitable ones. This is a field that might yield extremely interesting results if a pair of matched soft-focus lenses were used.

Zoo pictures, where the bars of the cages are ordinarily very obtrusive, become much more interesting when viewed through the stereoscope, as may be seen by so examining "Tiger at Swope Park". So viewed, the bars, in place of being objectionable, add a touch of realism to the picture; and the subject, instead of appearing as if closely confined, is shown to be fully two feet away from the bars and a much greater distance from the back of the cage. Even the painter, with his greater power in rendering perspective, evades the task of picturing such subjects, and we have all seen examples showing recourse to the device of a frame carrying bars across its front, thus acknowledging both the necessity of the bars and the inability to successfully picture them. The stereogram does not require any such artificial assistance.

The proper spacing of the two stereo pictures on the mount, after transposing, is important, if eye strain is to be avoided. As the ordinary stereo print is about three inches wide, the distance between like points on a pair must be about the same. In order to harmonize this distance, which is approximately the separation of the two lenses (the distance between two given points in the negative being the exact separation), with the separation of the eyes, the stereoscope is fitted with lenses that are slightly prism-shaped. These lenses being intended to give this certain amount of correction, a separation corresponding thereto should be adopted, the ideal distance between like points being from two and five-eighths to two and seven-eighths inches, with all care taken to have the base line of the two prints absolutely on alignment on the mount, as otherwise there will be distortion.

Of late the interest in stereograms has been revived, the war, perhaps, being to a certain extent responsible. In England, France and Germany, stereoscopy has been employed more than here at home. The foreign camera makers have anticipated the increased demand and are offering improved stereo cameras in large variety. Our own camera manufacturers have heeded the call and are putting forth new and better models for this work. The stereoscopic camera is being used extensively by the armies of the world in their aeroplane and balloon service, yielding results that are unobtainable with an ordinary camera.

Stereoscopic photography is also being employed in a practical way by many large corporations. The salesmen of these firms carry a stereoscope and a set of stereograms showing their products, and these are placed in the hands of the customer. Surgical procedures, studies in anatomy and various diseased conditions are, through the stereogram, made available for the doctor. Landscape architects and civil engineers use the stereoscopic camera in the planning and laying out of grounds; a recent instance being the construction of some of the army cantonments.

The stereogram is at last coming into its own after having suffered a gradual decline in interest for many years. Heretofore, the set of stereo pictures

with its viewing scope was a relic of the earlier days, when it shared with the plush family photograph album the honor of being a part of every well regulated family's possessions. Occasionally a thrilling "World's Tour" collection has been sold through some rural districts by a college student, during his summer vacations, but interest has been such that business was not particularly brisk. Here and there an amateur has discovered their charm, and produced a few, but most amateurs consider them difficult to make and a goodly number have never realized the charm of the well selected stereogram and have been content with their "one-eye camera". Anyone who has examined a few well selected subjects taken stereoscopically, properly finished and mounted, cannot but realize that the stereogram possesses qualities not to be found in other pictures.

Those Moonlight Pictures

By O. L. Wahlgren, I. P. A. 4330

With Illustrations by the Author

"Hello, Bernard!" Hello there! "Got your camera along?" Yes. "Any pictures?" Yes. "But! How do you get those pretty moonlight effects?" That's easy. I'll tell you how. These first two were taken on a Seed 26 plate, about six-thirty p. m. in July; using a six-inch focus lens, stop f-8, with one-twenty-fifth of a second exposure, an Ingento, three-times ray filter in position.

"Have you any exposure rule to go by?" Yes; mine is the old one of: Expose for the high-lights, and the shadows will take care of themselves.

"Do you have to use color-sensitive plates?" No; but I get better results thereby. Say, kid! Let's see if we can't find something around here that will make a good moonlight picture, just to try the matter out. It's July, about six o'clock, and the sun will soon be getting down about right for our work.

So we get up, gather together our cameras and tripods, and off we go through the pasture in the direction of the river. The water is low, the light does not fall across it right, and nothing can be done. Turning back, disgusted, we come upon a little slough and I run down to the water's edge. By this time the clouds are not particularly interesting, and I decide to make the reflections of light in the water the principal subject, by using the swing-back with the camera on a tripod. By exercising some patience I get the latter to stand firmly in the soft mud, and the next picture, the one with the light on the water only, is the result. This was made exactly the same as the ones I told you about, except that a Seed Standard Orthonon plate and stop f-11.3 was used.

The remaining picture, the companion to the last, was taken in June, about seven-thirty p. m., using only the rear combination of the lens, as it was too bright to risk the doublet, for fear the front combination would catch too much

light and produce a flare spot. This gave me a lens of ten inches focal length; and, using stop U. S. 32, with a Burk & James three-times Ingento ray filter, an exposure of one-twenty-fifth of a second was given on a Seed 30 plate.

"But; how about the tripod." Generally, I do not get time to use one when making this kind of picture. "And, tell me; doesn't the ray filter change the focus of your lens?" Yes, it does, but I take care of that by using a mark I have on my focusing scale, about one-sixteenth of an inch back of the hundred-foot one. In this kind of work one does not want detail or sharpness in the foreground, and the sky is of course always in focus.

MOONLIT WATERS

THE SILVER PATHWAY

"How about this danger of flare spot? How do you know when the light is strong enough to cause that trouble?" I don't get time to look on the ground-glass to see whether it is there or not; instead, I hold my hand, fingers extended, in front of my bosom, and if the shadows of the fingers are not too sharply defined, I feel safe in making an exposure. As for halation; the ray filter just about takes care of that. You see, it cuts off most of those light rays that cause the trouble.

"Can I use a ray filter successfully on my roll-film camera?" I think so; but, I would advise the following procedure before trying it: Procure a strip of ground-glass long enough to reach across the back of the camera, and rest on the two film guides. Tissue paper pasted on a strip of ordinary glass will answer nearly as well. Set your camera on a tripod, point it at some distant object, place ray filter in position, set shutter indicator at time, and open, and

remove camera back. Put the strip of ground-glass, ground side forward, up against the film guides, cover your head with a focusing cloth and focus sharply on the distant object, marking the place where the pointer comes on the focusing scale. This will be your hundred-foot mark when using the ray filter and other distances will be proportionately nearer the lens.

In this connection, an experience related by the veteran manufacturer of flash-light powder, James H. Smith of Chicago, will be of interest. Some twenty-five years ago, the making of these moonlight effects were supposed to be beyond the capabilities of other than a few experts; in fact, one such

WHERE MOONBEAMS PLAY

THE LAKE—MOONLIGHT

worker in Western New York had achieved no little fame by producing some good examples that no one else seemed able to equal.

It had, however, from the character of this worker's pictures been quite definitely decided that the sun, and not the moon as was at first supposed, served as the subject. Mr. Smith, then as now, an ardent devotee of the camera, determined to avail himself of the first opportunity of trying one of these pictures, one showing the low sun as a moon surrounded by clouds, and, with it's light reflected in the water below. Setting up his camera, and pointing the lens at the sun, he was dismayed, but not greatly surprised, to find that the "flare" or "ghost" that the strong light produced on the focusing screen showed plainly that a good negative was quite out of the question.

Swinging the camera to one side or the other, brought a measure of relief, although not an entire removal of the difficulty. But, having gone to all the

trouble of setting up the camera and focusing the view, he decided to expose a plate or two and see just what the result would be. A plateholder was inserted and two exposures of exactly the same duration were made.

Upon developing these, another surprise greeted the photographer. One of the negatives showed all the ill effects the focusing screen had told him he could expect, but the other was clear and brilliant enough to produce a picture equal to the best shown by the Eastern expert. Examining and comparing the two, Mr. Smith found that while the first showed, in addition to the ghost or flare, the image of the sun clearly defined as a positive, through being over-exposed to the point of reversal, the good one showed the same image as negative, due to there being a hardly perceptible soft edge of a cloud just passing in front of the sun at the moment of exposure. The flare or ghost that made the other negative practically unprintable, was, as stated, entirely absent.

Here was the secret quite accidentally revealed. Had the sun remained entirely unobscured while Mr. Smith made both the exposures, both negatives would have been unsatisfactory, and another worker would have continued to wonder just how these moonlight effects were produced. Mr. Smith soon made a number of like pictures; and, sending four of them to Edward L. Wilson of *Wilson's Magazine,* was advised that they were the best of the kind that the editor had ever seen.

Keeping watch over self means hearkening unto God—MARGARET LAPPING.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

MAILING PHOTOGRAPHS: The average photo mailer is made of corrugated board which is an excellent protection against a crushing blow, but of little avail against bending, such as results when the corner is attacked. My plan is to use ordinary pasteboard, cut two pieces about an inch larger all around than the pictures to be protected, cut a narrow, V-shaped slit, one inch deep, in the middle of each of the four sides, place the pictures between, put a string around so it falls into the slits and holds the photographs in the center of the package, and then wrap with the covering paper. In this way the protection extends an inch beyond the corners of the prints and can become quite badly bent in transit before the prints suffer any damage.—A. S. D., Florida.

IMPROVING BLUE PRINTS: If blue prints are placed in a bath made by adding one-half ounce of oxalic acid to sixteen ounces of water, they will be slightly intensified and their color improved. A very short immersion is all that is required, two or three minutes being sufficient.—T. G. B., New York.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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Now Is a Good Time

If the reader, the average reader, perhaps excepting the busy professional engaged in portraiture, is inclined, as we think he is, back in the corner of his mind there is a desire to try out some of the less popular processes, particularly those allied to the production of prints, in which the procedure is not so simple as with the developing papers in general use. Carbon tissue is still obtainable, kallitype the worker produces for himself, plain silver paper is not beyond the capabilities of a careful worker, and even the making of a slow dry plate emulsion, one perfectly satisfactory for the production of transparencies and positives on glass to be backed up with paper, is far from being an impossibility if a little intelligent care be exercised. The gaining of a reasonable amount of technical skill in a number of photographic processes of the greatest value is mainly a matter of giving the practice a little time that we have heretofore felt could not well be spared. For example: the dusting-on process described in a recent issue; the making of duplicate negatives with a view of improving upon the size or quality, or both, of the original; the combining of portions of two or more negatives and making a new one therefrom; even the more common processes of intensification and reduction; are all matters that the average worker would find most interesting as a means of increasing his photographic capabilities.

Why not, for the coming winter months, put aside our desire,—more correctly speaking, our habit, of continually adding to our stock of negatives, and devote such time as we wish to give to photography to familiarizing ourselves with one or more of these processes that we have so long wished to try out? Doing this we would, a few months later, find a gratification in our increased knowledge and our enlarged capabilities that would far outweigh any pleasure the few additional negatives our usual line of photographic activity might have given us during the same period. And just at this time I believe that a slight decrease in the demand for manufactured products, such as film, plates and papers would hardly be a source of deep regret to the manufacturers. But even were such not the case, there is little danger of our advice, be it ever so good, being accepted and acted upon to an extent that will be noticeable by these same manufacturers, but this fact does not invalidate the value of our suggestion. We know that the plan is a good one through personal experience. Several times during our own early photographic career we entirely discontinued the making of negatives, while all spare time was devoted to the mastery of some photographic process in which we were interested. So doing we only acquired a good technical knowledge of carbon printing, wet plate work, kallitype and a number of others. Better still, we found that, upon returning to our negative making, we did so with an added zest well worth the self-denial imposed upon ourselves.

And how to set about the matter is not a difficult question to answer. The files of our own or any other photographic magazine will supply abundant material upon which to go to work. As recent an article as can be found should be selected. If this is done, the editor of the magazine will generally be able to put one in touch with the writer of the article, and generally this writer will be quite happy to help the reader over any difficulties he may experience in following out his instructions. Not only this, but the editor himself is often able to advise, or at least suggest books or other magazine articles that give further details. But, in the greater number of cases, the instructions given in any good article, supplemented by the ordinary intelligence of the reader, will assure success. We only mention the possibility of help in order that the reader may not fear wasting his time to no good purpose through being unable to cope with difficulties not provided for in the instructions given him in a single article.

Another line of work that would serve about the same purpose, although perhaps less ambitious, is that involved in putting all one's negatives in order; that is, not only in good order for printing, but in orderly shape for the immediate finding of any one that might be wanted for the production of a print, lantern slide or enlargement. How time and temper-saving it would be to have all one's negatives, all the good ones, stored away in envelopes, numbered in rotation, and so shelved or boxed that they were each individually instantly accessible? Why not first weed out all the undesirable ones and, either destroy them if film, or clean off the glass if plates; and then do the same with those from which we may "some day" want a print, after first making a good print therefrom, to preserve in case the need really does arise. Then take the remaining good and desirable negatives and file away, first making a print from each. These prints should be lightly tipped into an album and on the under side of the free end a number placed corresponding to the one given the negative. Any worker can appreciate the convenience of such an arrangement, and he will be surprised how rapidly the work progresses once a start at something of the kind is made and systematically followed during the spare hours available. We would be pleased to hear from such of our readers as may take up the plan. Any and all of them should be able to give their fellow readers some very valuable advice.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Negatives for Enlarging

In these days most of us are using small cameras with a view to making enlargements from our small negatives. It therefore behooves all and sundry not to lose sight of the fact that a large size negative for contact printing in carbon, platinotype, printing-out paper, etc., and a small size negative for enlarging, say 2½x3½ to 10x14, are not quite on all fours.

If we take a negative giving a contact print of medium-soft contrasts, and make from it two enlargements, the first of say two diameters, and the second say six or eight diameters, we shall probably find this latter or larger scale picture seems more contrasty than the former print of smaller scale. Hence the greater the degree of enlarging, the more important is it to avoid the harsh type of negative which so often results from under-exposure and over-development. And seeing that in these days of hand camera work, where more failures come from under-exposure and over-development, this matter should not be overlooked.

Next, one must remember that certain subjects seem to demand re-presentation on a large scale. The boldness of their very nature seems to suggest corresponding treatment as regards size, breadth, and simplicity. In some contact prints of small scale negatives we may have a good deal of detail which is on so small a scale that it happily escapes attention. But a moderate enlargement from this negative may give this detail of a size that compels a degree of notice that is inimical to good general effect. Thus we see that it is a mistake to suppose that enlarging a picture always simplifies it. This may or may not be the case. This wrong notion is perhaps due to the fact that in enlarging we often can and do simplify by using only a part of the whole negative, including perhaps only one of several figures, omitting part of the foreground, etc. Where we have the choice of a lens of longer focus we may often employ it in this kind of simplification, i. e. including a smaller angle of subject with a corresponding increase of image size in the negative.

Focusing is a matter which seldom receives the attention it deserves. The user of a fixed-focus camera may exercise some discretion here if he bears in mind that by changing the size of his stop he correspondingly modifies not only the permissible depth of field or subject, but also the degree of focus or sharpness of definition. For example, with a lens of five inches focal length and stop f-8, the hyperfocal distance is twenty-six feet, so the available field is from thirteen feet to distance. But objects as near as thirteen feet would not be sharp enough for any considerable degree of enlarging, though they might pass muster in a contact print. Changing the stop to f-11 the hyperfocal is now nineteen feet, so the field is nine and one-half, say ten, feet to distance. But for an enlarging negative it would not be wise to include anything so near as ten feet. It would be better to put the limit at fifteen, or even eighteen feet.

Of course the reader knows that for each lens-to-plate distance there is a corresponding, i. e. conjugate, lens-to-object distance, where the image is sharper than it is for other objects either nearer or further away. We may call this the "focus point" for the moment. Suppose we are using f-8, and that we get the sharpest definition at thirty feet. We now change the stop to f-11. Again we find that thirty feet is still the sharpest plane; but also our thirty-foot object is decidedly sharper than it was with f-11. Also we may notice that we now have nearer and further planes, say twenty-five to fifty feet as sharp as we had with f-8 at thirty feet. Thus by reducing the stop with a fixed-lens camera, not only do we increase the degree of sharpness for a certain plane or distance, but we also increase the depth of range of sharpness. Moreover, we have to remember

that all sharpness is only relative. The sharpest bit of any negative if enlarged enough becomes noticeably fuzzy, so that the required degree of sharpness bears a relation to the degree or scale or diameters which the negative will stand enlarging without becoming objectionably fuzzy.

Fine focusing is a matter which concerns us at all times, apart from the topic of enlarging, although it has a special bearing in this particular direction. By this term is meant the procedure of getting some one part of our subject as sharp as is possible under the given circumstances. This obviously involves a focusing camera and focusing screen of some kind. Also, unless the worker be exceptionally near and keen sighted, it calls for the use of a focusing glass or magnifier. This must be set to suit the eyesight of the user by taking a waster glass negative and scratching or cutting the film with a pin or knife. The magnifier is laid on the glass side of the negative, and then adjusted so as to show the ragged or cut edge of the gelatine film as sharply as possible. The thickness of this negative must be the same as that of the focusing screen. The focusing glass is now "in focus" for the image plane, i. e. the rough side of the ground-glass. While ground-glass may serve for most of our work, the finest kinds are too coarse for critical focusing. We can subdue the grain and add translucency by rubbing the ground side with a trace of vaseline, oil, or glycerine. The last named is preferable, as it does not smell or dry. Such a screen is a considerable help in interior work, where often the quantity or strength of light is small. It is also acceptable in most indoor work, e. g. still-life, portraiture, copying.

But for fine line and other critical work we must get rid of all grain. We can use a piece of clear glass, but this involves time and trouble in removing the ground and substituting the plain glass. Another plan is to cement a thin microscope cover glass on to the ground-glass with a drop of dissolved Canada balsam. One or two very fine hairs may be enclosed between the two glasses. The best plan is to make a special focusing screen, part fine grain, part clear glass. Take an ordinary or slow plate, and expose it, in the dark-room, to the light of a burning wax match for a few seconds at say three feet distance; develop this plate until it has a rather thin, even fog veil; fix and wash it; bathe it in a water solution of potassium iodide and iodine to a pale sherry color, or we may use tincture of iodine as sold by the dispensing chemist, suitably diluted, i. e. a few drops per ounce of water. Leave the plate in this in the dark till the gray fog veil is completely bleached to a yellow tinge. Wash in dilute ammonia, about one-half ounce ammonia per pint of water, till free from yellow stain. Dry the plate. Now, with finely pointed penknife and straight-edge, cut through the film so as to leave horizontal and vertical lines giving bands say one-fourth to three-eighths inch wide, crossing at the center. Scrape away this part of the film down to the clear glass. You now have a very fine-grain and clear-glass screen at the same time. It will save time and trouble while about it to light-fog, say three plates, and develop them for different times. You can then select the one of density you most fancy.

Pictorial focusing is fundamentally a matter of personal fancy. But the following principles are noteworthy: Great, i. e., noticeable, contrast of very sharp and very otherwise are seldom acceptable. There is no more art in a fuzzy-all-over than a sharp-all-over picture. Sharpness should, as far as is otherwise consistent, bear some general relation to pictorial importance. The larger the final print, the further away we should stand to view it, and so the less likely are we to notice moderate fuzziness.

As our desire in this connection is towards soft, rather than hard contrasts, so naturally, when circumstances permit, our inclination should be on the side of generous, rather than short exposure, and in general the more contrast the subject itself possesses the more need for full exposure.

Expose for the darks, and develop for the high-lights is the right maxim here. In other words, do not carry development so far as to lose the difference between the highest and next light. If the exposure has been right, the shades and shadows will look after themselves. The commonest defects of all in enlarging are flat and chalky high-lights and inky, detailless shadows, i. e., the negative is so far over-developed that the thinner parts are already over-printed before the high-lights have been penetrated. Our

last word is keep the negative as free as possible from both stain and fog.—*Amateur Photographer.*

Covering Power and Definition

For some reason or other most photographers have an idea that it is quite in excess of their power to learn anything about lenses beyond the fact that they are essential adjuncts to the camera, that they cost a lot of money, and that they do not always yield good pictures. Perhaps one reason for this is that to have a deep knowledge of the design, properties, and construction of lenses a man must be a fairly competent mathematician, and mathematicians can only express themselves by using mathematical symbols and terms of which the ordinary man knows naught, so that at the outset he is practically shut out from all lens lore except the few pages usually devoted to the subject in general text-books on photography. We, therefore, feel that no apology is needed for again repeating some elementary information of a practical nature, on a few selected points.

A point on which much misconception exists is "covering power". Very often a lens which would answer capitally for wide-angle work is overlooked in that connection because it has been purchased for another purpose, and the owner has no idea that its powers go beyond what it was supposed to do. As an example, there is a very cheap anastigmat often fitted to quarter-plate hand cameras, which upon testing was found to illuminate a circle of over ten inches diameter, and therefore capable of being used as a wide-angle lens on a whole plate, its performance at a given aperture being better than a professedly wide-angle lens of similar focal length. It is believed by many that the covering power of a lens is increased by stopping down. This is only true in the sense that the area sharply defined is increased, but the size of the circle illuminated, and consequently that of the largest plate which can be covered, remains the same. In fact, with one well-known make the size of the circle of illumination is appreciably reduced at the smaller apertures of the diaphragm. Covering power is not in any way dependent upon the focal length of the lens, but upon its construction. Of course, with lenses of any one class, such as rapid rectilinears, the covering power increases in proportion to the focal length, but when different classes are compared the difference is very marked, a short focus anastigmat usually covering a much larger field, whether expressed in terms of illumination or of definition, than a rapid rectilinear of much greater focal length. The circle of illumination of lenses of the rectilinear type can usually be increased by decreasing the separation between the combinations, but the focal length is very slightly affected by this operation, so that if the intention is to convert a rapid rectilinear into a wide-angle lens it is necessary that a larger plate be used.

Sharpness of definition is a rather uncertain term when applied to the performance of a lens. Very few photographic lenses come up to an astronomer's standard, and it is not necessary that they should do so, but even photographic lenses vary to an enormous extent. It is not desirable here to go into the causes of such variations, but rather to show their effect upon the quality of the negative, and this is an important question when copying fine-line subjects or making negatives when subsequent enlargement is to be undertaken. Many expensive modern lenses, especially those of the larger sizes, leave much to be desired in this respect, and it would surprise many of their owners if plates were exposed upon a page of clear print upon smooth paper, such as we find in the better-class magazines, using apertures of f-5.6 and f-22 respectively. In most cases small type, such as that used in our small advertisements, if reduced to one-fourth scale, will be hardly legible at full aperture, while it will be quite sharp with the smaller opening. A slow plate should be used for this trial, as the coarse grain of some of the extra rapid emulsions would interfere with the results. For portraiture and certain classes of landscape and architectural work such critical sharpness is not necessary nor desirable, so that various devices have been employed to soften the definition at will, or special lenses have been constructed which are incapable of giving a sharp image.

It is not possible to define sharpness with any exactitude, so that it has been found necessary to take as a working standard a "circle of confusion" one one-hundredth of an inch in diameter as a practical working

standard. As is well known, every point of light in the original subject is represented by a tiny disc upon the photographic plate, and when these discs do not exceed one one-hundredth of an inch in diameter we call the image sharp. On the Continent the standard is one two-hundredth of an inch. Photographic definition differs from that produced by the draughtsman or painter, inasmuch as the photographer has no local control over the edges of his areas of light and shadow. A picture may be painted in the broadest possible way with large dabs of color, but the edges of these dabs are more or less sharp, and serve to define such details as it may be desired to emphasize. In the same way the roughest sketch in pencil or chalk owes much to its sharpness to the edges of the strokes. A photograph is, on the other hand, more like a pure mezzotint in its character, but without the mezzotint grain, so that it is difficult not to degenerate from softness into smudginess. For this reason many photographers wisely adopt a rough surfaced paper for their soft pictures, or use one with a canvas grain. In either case the smooth texture is broken up, and something of the mezzotint quality is obtained. About ten years ago Howard Farmer suggested the use of a reversed copy of a cross-line screen, which he placed in contact with the sensitive surface when enlarging. This broke up the shadows, and in a less degree the half-tones, into a grain which, while imperceptible to the eye, relieved the hardness of the image.—*British Journal of Photography.*

Constructing a Focusing Scale

It has been stated that if a sharp image of a distant object is formed at the principal focus of a lens, and then a near object at a distance, say, of four feet, be selected, and its image focused upon the focusing screen of the camera—that at a point midway between the two image planes will be the extension of camera required for an object at double the distance, or eight feet away. and midway between this and infinity the extension for an object at sixteen feet away, and so on. It should therefore be quite an easy matter to construct a focusing scale for use with any lens by proceeding in the manner indicated. Unfortunately, however, the method is wanting in accuracy, as can be readily shown. Taking as an example the case of an eight-inch focus lens, the image of an object at a distance of four feet away from it would be formed at one and six-tenths inches from the infinity mark, and, according to the above rule, that of an object eight feet away, would be half of this, or eight-tenths of an inch from it; but the focus of an eight-inch lens for an object eight feet away is eight and seven hundred and twenty-seven thousandths inches, consequently the distance as determined by the above method would be about one-thirteenth of an inch too far from the infinity end of the scale, and if we take as a further example the case of a seven-inch focus lens it would be about one-twentieth of an inch too far from it. In the case of short focus lenses, however, the difference becomes so small that a scale made on the above principle may answer the purpose in many cases, but where accuracy is desired the following simple rule should be employed: Take some useful proportion of the focal length of the lens and lay it off from the infinity mark, then divide the distance into two equal parts, and this again into two equal parts, and so on. If below these values we place a number which is greater by one than that which represents the number of parts that the focus of the lens has been divided into, then the focal length of the lens in inches when multiplied by these figures will denote the respective conjugate foci in inches. The drawing furnishes an example of a focusing scale constructed according to this rule for a lens of six inches focus, beginning with a point one-eighth of the focal length and halving it for one-sixteenth, and so on; the distance of each of the values from the infinity mark and their respective conjugate foci being given in the following table:

Distance from Infinity	Conjugate foci
3/4 in. = 1/8 of focus	9f = 54 in. = 4 1/2 ft.
3/8 in. = 1/16 of focus	17f = 102 in. = 8 1/2 ft.
3/16 in. = 1/32 of focus	33f = 198 in. = 16 1/2 ft.
3/32 in. = 1/64 of focus	65f = 390 in. = 32 1/2 ft.
3/64 in. = 1/128 of focus	129f = 774 in. = 64 1/2 ft.

All that remains to be done now is to reduce the diagram to three-quarters of an inch in length, when the scale will be correct for use with a six-inch focus lens. It will be readily seen that the preparation of focusing scales according to the above rule is quite a simple process, while at the same time accuracy is ensured, and the method has the additional value of having been recommended by E. M. Nelson some twenty or

more years ago. The scale corresponding with the above data is reproduced herewith, but of twice the actual size.—EDGAR SENIOR, in *British Journal of Photography*.

Restoring Daguerreotypes

Hitherto it has been usual to advise those who have a tarnished or discolored daguerreotype which they wish restored, to put it into the hands of an expert in such matters; but time has passed, and those who have worked the daguerreotype process have joined the majority, so that it is no longer possible to act on such advice, and if the work is to be done it must be done at home. We may point out before describing it in detail that the daguerreotype image is of an exceedingly delicate character: the lightest touch may injure it irreparably; and if its record is a valued one, the most ordinary caution will show the expediency of making a careful photograph of it before subjecting it to any operation whatever. Having got as good a negative of it as we can, we may then proceed to put the restoration in hand.

It was usual to bind the silver plate to a piece of glass by means of strips of gummed paper, so as to exclude dust, and the first operation, therefore, is to get rid of the binding and remove the glass. A little gentle coaxing with the point of a knife will remove the glass and picture from the passepartout by which it is usually protected, and a few strips of damp blotting paper laid on the paper binding will generally soften the adhesive enough in a few minutes to allow the binding to be peeled away and the glass lifted off without damaging the matt with moisture.

We repeat at this stage the caution that no solid substance whatever, not even the lightest tuft of cotton wool or the softest camel hair brush, must be allowed to touch the face of the picture. If there is any dust on it, it may be blown off; but it is better not to do anything of the kind at all, leaving it to wash off, as it is almost sure to do very quickly. To this end the plate, face upwards, is placed in a clean dish and a little alcohol poured over it. Only just enough to cover it need be used, and the alcohol should be spirits of wine, and not methylated spirit, as this contains a gummy product, which will be precipitated on the image when water gets to it. After five minutes or so in the spirit, rocking the dish occasionally, the spirit may be poured off and the dish put in the sink under a steady stream of water from the tap. After a few minutes of this, the spirit, followed by the water, will be found to have got rid of any adherent dust, and the surface of the picture will be in the right condition for the next operation.

This is to apply a weak solution of potassium cyanide, a highly poisonous substance, which will remove the tarnish but will not attack the image itself. A ten per cent solution of the cyanide may be made up, and then putting a couple of ounces of water into a graduated measure, a dram of the cyanide solution is added to it, the mixture is swirled around, and poured over the picture in the dish. The dish is rocked for half a minute or so and watched to see if the tarnish dissolves. At the end of a minute the solution may be poured back into the measure and strengthened with another dram of the strong cyanide solution, and the operation repeated. This can be done again and again until as much of the cyanide solution as of the water is present; but it is not likely that anything like such a concentration will be needed, unless the sample of cyanide in use is very old and has deteriorated.

As soon as the tarnish has vanished, or sooner if there is the slightest sign that the image is being attacked by the cyanide, the solution must be poured off at once and the dish filled with water, which is changed several times, to wash away the cyanide as quickly and as completely as possible. The washing need not be very prolonged, as there is no absorbent film of gelatine or other vehicle, the whole of the action lying on the surface. Ordinary tap water can be used for the operations up to this point, but the last washing of all must be in distilled water, as the impurities in tap water would leave a mark on the surface of the picture on drying.

So far there has been nothing which calls for any dexterity or skill; mere ordinary care to avoid touching the face of the picture, or allowing the cyanide to act too far is all that is required. But for drying the plate something more is needed, if it is to be left spotless. It must be taken out of the dish of distilled water in which it is lying, and held with a pair of pliers at an angle of forty-five degrees by one corner diagonally,

so that the lowest corner is next to that held in the pliers. A Bunsen burner or spirit lamp will be required, and then, after pouring over it a fresh lot of distilled water, holding it all the time at the one angle, the top corner is brought over the flame, and several inches above it, so that the warmth begins to dry it off. As it dries the plate is gradually moved over the flame so that drying may proceed steadily downwards until it is complete. Any pause in the drying is apt to leave a mark, and if the plate is made at all hot the image will be injured. When dry the matt and glass should be replaced and the picture bound up at once before there is any chance of it getting injured.—C. E. Bold in *Photography*.

Staining Picture Frames

Although the present tendency in photographic exhibitions is to accept unframed pictures, the occasion may frequently arise when the amateur or even the professional worker wishes to set off a picture to the best possible advantage in a frame which harmonizes with the distinctive tone or tint of the print. This need will often make itself felt in connection with portraiture in unusual colors, such as can be obtained by means of carbon, or, to quote another instance, a colored frame will often prove of immense value as the finishing touch to a picture of a decorative character.

It is evidently not generally known that practically all classes of wood can be dyed or stained to almost any color with a minimum of trouble. The following hints and formulae are given with the hope that they may prove both of interest and practical assistance.

The first essential, whichever method of treatment is adopted for the subsequent "staining" operation, is to ensure that the wood is both clean and dry.

There is a variety of methods available for producing brown effects, the simplest being to brush over the woodwork (using an old brush for the purpose) with a solution of permanganate of potash, the depth of color obtained being more or less according to the strength of the solution. The surface may afterwards be varnished or polished with beeswax and turpentine. Another plan —for browns—is to employ diluted sulphuric acid, which should also be applied with a brush, the intensity of the color produced by this means being determined by the extent to which the acid has been diluted. When the staining properties of the acid have reached the requisite stage, its further action should be arrested by the application of ammonia. Tincture of iodine will also yield a fine brown color, but unfortunately it is not permanent, unless the air is excluded from the treated surface by a thick coating of polish or by one or more coats of suitable clear varnish.

A fine yellow, which has the added advantage of being permanent, can be obtained by the use of nitric acid. This yellow stain can, if it should be so desired, be easily converted into brown by a subsequent application of tincture of iodine.

In the majority of cases wood can be colored, and will yield bright, pleasing results without any special preparation or bleaching; as a rule, the solutions recommended themselves exercise a decided bleaching action upon the wood. It may be found necessary, however, in some cases, in consequence of the natural color of the timber under treatment, to employ a suitable bleaching agent. An excellent medium for the purpose consists of:

Chloride of lime	4¼ ounces
Soda crystals	¼ ounce
Water	2½ pints

The wood is steeped in this compound for a period varying from ten to fifteen minutes, which time may with advantage be extended to half an hour, provided that the prolonged immersion does not appear to adversely affect the texture. After removing the article from this bleaching bath, it must be placed in a solution of sulphurous acid in order to remove all traces of the chlorine, and then well washed in running water.

It is always advisable before proceeding to deal with a frame or any pieces of woodwork of importance to first of all make an experimental test of the method chosen upon a small piece of wood exactly similar to that which the worker intends to treat. This will enable him to decide upon the requisite strength of the solutions for the particular work in hand, and will also indicate the necessary time of immersion, etc., to obtain the exact shade or intensity of color which may be aimed at.—F. H. B. Smith in *Amateur Photographer*.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Those Fleeting Expressions

One of my recent visitors gave me a new idea along the line of expression in portraiture that might interest others who may have their own ideas on the subject. He maintained that those who worked with a fast lens and shutter in order to catch the fleeting expression of the subject, were working along the wrong lines. The fleeting expression is all right as long as it is fleeting, but embalmed in a portrait it is about as satisfactory as would be the portrayal of a man with one foot off the ground, as in taking a step forward. The expression by which we remember our friends is a thoughtful, restful one, the expression generally held,—not the fleeting one. When we find pleasure in looking at and studying the face of a friend, the face is in repose; is, in other words, relaxed, as compared with the animated expression some photographers think so essential to a "speaking" likeness. Of course, the facial expression should not suggest a mind that is vacant, or a body that is fatigued, but the simple expedient of turning the head at a little different angle than the body will generally serve to give a sufficient suggestion of animation, except, perhaps, in the case of an exceedingly vivacious young lady or an exceptionally wide-awake child. At least, this is the contention made by my visitor and he certainly could have said a great deal more in favor of his views on the subject. There is at least one well known photographer who contends that the proper way is to give quite long exposures, several seconds, in fact, in order to secure a composite, as it were, of several of these fleeting expressions. But why should there be a transition from one expression to another if the sitter is permitted to enjoy ordinary freedom from annoyance, while in the photographer's hands? I cannot imagine that the subjects who came before our old masters were all entirely free from any inclination to frivolity, yet I am quite sure we like their portraits better and feel that we understand their characters better than would be the case had our painters been seeking for the same animated expressions that some photographers prize so highly. Perhaps a few reproductions of well-known portraits by the old masters would be a good form of decoration for many of our reception rooms, serving to educate the photographer, as well as his customers, along the lines of good portraiture; and, they might also suggest the possibility of producing satisfactory results by photography, as well as by the brush.

One Way To Learn

It is perhaps quite obvious, but did you ever stop to think how little time it would take to become an expert if you only investigated every failure or every unsatisfactory result that you got, determined just where the fault lay, and decided never to fall a victim to that particular mistake again? Suppose you traced down one failure a week; in a year you would have a pretty respectable list of mistakes that you were no longer guilty of making, and so equipped, you could pose as being just about as expert as the next man. And one can have quite a little enjoyment following out this plan. Just take the faulty negative and ask the photographers you know, about it. If you are somewhat isolated as to other workers, write the manufacturers of the material you are using. Write the editor of your favorite photographic magazine. Ask them what the trouble is; that is, if you do not know yourself. In either case, be sure and determine how a repetition of the difficulty can be most surely avoided. And when you ask for information, explain just how you proceeded, so that your adviser will have some basis on which to work. Take a thin, foggy negative for example. It may result from a number of causes. The plate or film may

have been handled too carelessly before going into the camera; it may have been subjected to impure, damp atmosphere for too long a time. The bellows of the camera may admit just a little light; the exposure may have been made with strong light striking the front combination of the lens; the developer may have been too strong in alkali, or too warm, or a combination of the two; the dark-room light may have been unsafe, and then we have gotten only as far as the negative. A thin, smoky print may be caused by such a negative, or faulty manipulation of the print may secure the effect from a good negative. So, in seeking advice, give your instructor a chance to know as many of the facts as possible.

Our Landscape Compositions

There was an amateur in for a visit recently and amongst the prints he had to show was one of a few shocks of wheat, a part of a wheat field, that he had tried to make pictorial. He failed, in his own estimation, because it was impossible to avoid getting so much open space, expanse of stubble, between the shocks. This, in combination with the large sky space, did not suit him in the least. The whole trouble was that he was not following out the right idea. The ordinary landscape, the common "up the creek" or "down the road" type, seems to require an avoidance of uninteresting spaces; but, when one wants to portray a landscape in which the dominating feeling is that of "all outdoors", the reverse is the right treatment. We take our camera to the seashore and point it in such a direction that the picture space is nearly filled with breakers and rocks, with the result that the picture is interesting, perhaps very good as to composition, but we do not get the feeling of the sea that we do when these things are shown less prominently, and the major portion of the space is occupied with an expanse of sea and sky. One of the best pictures I remember of ever having seen as a portrayal of the "all outdoors" spirit of the scene itself, was one that would have had the entire upper half trimmed off had it fallen into the hands of one of these workers who are so keen for composition and arrangement of lines. Pictorial quality is not achieved by following a formula that is supposed to be applicable to every subject. The main thing is to portray the spirit of the scene. One subject is best treated in broad masses with little regard for detail, while another requires all the detail that can be secured with a due regard to atmospheric or aerial perspective. It all depends upon the idea we wish to convey. In one case, slight under-exposure helps us to secure what we want, while in the other the result be fatal spottiness. The chance picture is indeed a rare achievement.

The Iodine and Cyanide Reducer

The formula for this excellent reducer reads: Iodine, ten per cent solution in potassium iodide solution, thirty minims; potassium cyanide, ten per cent solution in water, five minims; water, one ounce. But a number of our readers have trouble over this first solution; the iodine doesn't dissolve, and has to be thrown away. The right procedure is as follows: Take sixty grains of the iodide, place in a small graduate and add about thirty minims of water, stirring together with a glass rod until the former is dissolved or nearly so. Then add forty-five grains of iodine and again stir. If it does not all dissolve, add a little more water, and it may be possible that adding a little more of the iodide may be necessary if the original quantity is all dissolved. When all the iodine is dissolved, make up to one ounce by adding water, and there will be no tendency to form a deposit, as happens if too much water is used at first.

The Exhausted Fixing Bath

An Iowa subscriber wants to know how he can tell when his fixing bath should be discarded. A new one should be installed when the old one begins to work slowly, which can be determined by observing how long it takes for the milky color to disappear from the emulsion. A fresh bath should take five or six minutes, and when this time is doubled the bath should be replaced. An old bath will still fix the plates or films, but it has a bad effect upon the emulsion, one quite the opposite to the hardening tendency of a fresh hypo solution. Acid bisulphite or sodium bisulphite lye added to the fixing bath has a tendency to throw down or precipitate the chemicals removed from the emulsion, so that such a bath will work well, although with increased slowness, until a large part of the hypo has been removed along with the fixed plates or film.

THE CAMERAMAN'S PAGE

Edited by Hal G. Hall

A Practical Department of Comment on Methods and Apparatus

The Frame Line Again

Now that the Society of Motion Picture Engineers, representative of all branches of the film industry, has formally sanctioned a standard placing of the picture frame-line in relation to the film perforations, there remains no logical justification of deviation from this standard,—if there has been any in recent years. Broadly stated, a between-the-perforation frame-line is both right mechanically and as a matter of efficiency in conforming to standard. Even were the between-the-perforation frame-line not the best mechanically, its invariable adoption would be fully justified in the interest of standardization.

Mechanically, there are at least two good reasons why the frame-line should be between the perforations. And, since it should be between the perforations, there is at least one other practical reason why it should be as nearly as possible exactly midway between them. In the first place, a spliced film must necessarily be stronger if the cut is made between perforations than if cut through perforations, and hence there is less liability of trouble from breakage at splices. Secondly, in assembling, the scraping of the film preparatory to splicing is more readily done than when the film is cut through perforations. Incidentally, there will probably soon be on the market a film-splicer that makes overlapping of film ends unnecessary, and this splicer would scarcely be practicable if film were cut through perforations. Lastly, in photographing titles, if the frame-line is not almost or exactly midway between perforations (or else at middle of perforations), titles must be shot with the title cards right way up, or the titles will not frame with the rest of the picure, even though photographed with the same camera. A mistake is especially noticeable when a title is photographed direct on the positive from a white card. In this case, as the frame-line space between pictures is not blackened by printer, the misframe is very obvious when projected on the screen, the white streak being in evidence until the offending picture can be correctly framed.

The mechanical demands for a between-the-perforation frame-line standard are, however, quite insignificant in comparison with those made on the score of efficiency secured by having all cameras alike. Even were the at-the-perforation frame-line mechanically right, the between-the-perforation frame-line would be overwhelmingly justified by the necessity of standardization, in view of the fact that a majority of cameras now in commercial use are fitted with between-the-perforation frame. The chief object of standardizing the frame-line location is to make it possible for scenes photographed with any camera to be used in the same reel with scenes photographed with any other camera without the necessity of framing the picture on the screen as scenes from different cameras are projected.

It is safe to venture that a few millions have already been needlessly wasted in film production because of the apparently insignificant off-standard frame-line. We are personally aware of several thousands wasted in producing film, money that could have been saved by using the simple and comparatively costless standard camera frame-line. Quite recently, one installment of a serial was almost completed when an accident put the camera out of commission. There did not remain much time to complete this installment on schedule for its release; hence, rather than run the chance of delay in matching up the off-standard frame-line on another camera, the entire installment of the serial was immediately retaken, of course, duplicating production of scenes completed before the accident. In this one case, the loss of the performer's time would not only have paid for cost of standardizing the company's cameras several times over, but would have paid for the best obtainable camera

outfit, to boot. And the salaries of the performers was but a minor item in the entire production expense, which included the rental of a train, horses and automobiles. If this producing company had been equipped with even one extra camera with frame-line duplicating that in the wrecked camera, some odd thousands would have been saved.

It would seem like a waste of words to suggest the necessity of a standard frame-line in all cameras shooting scenes for the same production. And yet the failure to consider this essential has occurred innumerable times, each time with a considerable cash loss to some one or some organization, not to mention delays, inconvenience, and troublesome re-takes to get uniform frame-line.

Another source of loss from off-standard frame-line is from special scenes in a producing company's "morgue", or perhaps as it may be sometime, scenes that would be added to the useful "morgue" if photographed with standard frame-line. For instance, some real fire scenes are accessible when needed in a production, but it is found that these scenes have been taken with a different frame-line than the rest of the picture. Either the fire scenes on hand must be passed up and new ones produced at considerable extra expense, or else the frame-line of the current production must be adapted to fit the fire scenes. Should it happen that the necessary fire scenes from the "morgue" had been taken with two or more cameras, one of whose individual frame-line nearly matched neither that of the other's, nor that of the camera used in the production, one of the other series of fire scenes would have to be passed up. Another instance: In the morgue are some automobile racing scenes, photographed with an old, off-standard frame-line camera. Any new production in which these scenes are required must have its frame-line matched to these available automobile scenes; or the production of the piece in its entirety must be deferred until an opportunity presents for making the new racing scenes. Again: a producing company has a chance to buy some remarkable big-game negatives that it could use to good advantage; but, the big-game stuff was photographed in a camera with an odd frame-line. Adjustment of studio cameras to fit the off-framed negative involves more disorganization to production than the picture seems to justify, and the big-game scenes are not used, to the disadvantage of both the producing company and the owner of the big-game negative.

Instances similar to the above might be given indefinitely. While there are the best of reasons for the universal adoption of the standard frame-line, there is not a valid argument against. The two or three producers still using at-the-perforation frame-line may continue to do so for a time because of an inertia that delays the reorganization involved in changing to standard frame-line. But the producing company or cameraman that is now content to use a camera with frame-line located nowhere in particular or just "somewhere between perforations" is throwing a boomerang that is bound to strike home some time; and he is, at the same time doing his bit towards putting the brakes on the standardization of the films. The proper place for the frame-line (i. e., division between individual pictures) is exactly midway between perforations. And any cameraman who is now content to use a camera with frame-line located anywhere else is guilty of gross negligence.

CLUB NEWS AND NOTES

Auckland (New Zealand) Camera Club

The syllabus 1917-18 of this active and progressive club is interesting in this, that it shows that a monthly competition for pictures by the members is held in connection with the regular monthly meetings at which talks and demonstrations, also listed as to subjects, are included. For example, the competition subject for January competition is "Forest Glade", the date being the seventeenth, the same as that for Mr. Birch's Chat on Astronomy, with lantern slides. February fourteenth, the subject given is "A Summer Day", Mr. Woodhead

giving a talk on home portraiture. While publishing such a syllabus involves some little work in arranging so far ahead for talks and demonstrations, the plan is a good one and one that should be quite effective in enlisting the interest of possible new members of any camera club. It really should prove worth all the trouble involved for that reason alone.

The Columbia Photographic Society

This enterprising camera club announces an interesting series of events for the Monday evenings of October. These include a demonstration and talk on Control Development by C. C. Whitenack; a lecture on The Santa Fe Trail, illustrated with lantern slides, by George B. Kaiser; the annual auction sale, and an exhibition of interchange prints and speed pictures. The automobile outing to the Pocono Mountains some weeks ago was so enjoyable that another is contemplated during the month, and Vice-President Cassel invites suggestions as to place and date therefor. Those desiring to communicate with the society should address W. H. Post, Jr., Secretary, 2526 North Broad Street, Philadelphia, Pennsylvania.

OUR BOOK SHELVES

"If I Were Twenty-One"

In this new book, the author, William Maxwell, has given us a book of much human interest and not a little wit, one that should serve as both an inspiration and source of information to the youths and youngsters of the land. With not a few pointed anecdotes and entertaining illustrations drawn from his own experience, the writer points out the moral and mental equipment that, to him, seems most requisite if success would be achieved. To quote from the book an example in point, he says, in the chapter on Self-Esteem—Self-Confidence: "I am somewhat of a bluffer myself, but, between you and me, never in my whole life have I been able really to make a bluff 'stick'. There isn't anything in bluffing, and if I were twenty-one again, I should never start anything that I didn't think I could finish." The book is a gratifying relief from the rather formal ones covering business administrations and the like. Written as it is, in an informal manner, without false enthusiasm, but reflecting the author's own knowledge, based on his experience in getting jobs and in keeping men at theirs, it is as entertaining as it is informative. Published by J. B. Lippincott Company, Philadelphia, Pennsylvania. One dollar and twenty-five cents net. Postage eighteen cents.

"How to Live at the Front"

This book lives up to its sub-title, "Tips for American Soldiers," being a book for the American soldier from an English comrade-at-arms, Hector MacQuarrie, B. A. Cantab, Second Lieutenant, Royal Field Artillery. The author, in this spontaneous message to the man who wants to return with an unsmirched soul, unsmirched by the atmosphere of killing that he must endure, begins with the training camp and takes the reader along to an intimate acquaintanceship with the manner and character of the Tommy, the Poilu, the French people he will meet behind the lines, and the English, as a whole. Battles, atrocities or other of the things that the newspapers have covered, are avoided for frank and helpful information, given in a human and whole-hearted manner. Two hundred and seventy pages with twelve full page illustrations, cloth bound. Published by J. B. Lippincott Company, Philadelphia. Price one dollar and twenty-five cents, net.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

Officers of the I. P. A.

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J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

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NOTE.—All stereoscopic slides sent to Director for the circulating sets must be mounted, titled, and show the maker's name and I. P. A. number on the back of mount. Notify the Director how many mounts can be used, and a supply will be sent you by return mail.

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Answers to inquiries concerning membership and membership blanks will be supplied by the State secretaries. Album directors are at present acting as State secretaries in such of their respective States as have as yet no secretaries.

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NEW MEMBERS

4402—Cyril G. Waters, 209 Syndicate Block, Edmonton, Alberta, Canada.
Class 2.

4403—Duane D. Phalen, 133½ W. Broadway, Butte, Mont.
Post cards, developing papers, of snaps of every-day happenings; for anything of general interest. Post cards only. Class 1.

4404—Thos. Wilson Gordon, 10926 72nd Ave., Edmonton South, Alberta, Canada.
Class 2.

4405—Louis H. Dreyer, 258 Broadway, New York City.
2¼x3¼ and 3¼x5½, developing papers, of views, buildings, landscapes and children (portraits, outdoor); for views, buildings, children, portraits, bathing scenes and girls, also nude and draped studies. Prints only. Class 1.

4406—Beauregard C. Betancourt, 594 Kosciusko St., Brooklyn, N. Y.
Class 2.

4407—V. E. L. Jensen, Jamestown, Cal.
Any size up to 6½x8½, various papers, of Sierra views, high and foothills, mining and Yosemite Park; for high mountains and children, draped and nude. Class 1.

4408—Paul J. Kugler, 508 N. Glen Oak Ave., Peoria, Ill.
Class 2.

4409—R. L. Clahar, 126 West 143rd St., New York City.
Class 2.

4410—Frank J. Davis, 136 Fairview Ave., Connellsville, Pa.
Class 2.

RENEWALS

3996—Paul M. Elder, 112 Garden Ave., Coeur d'Alene, Idaho.
Class 2.

4126X—John Bieseman, Box 136, Hemlock, Ohio.
Post cards, also 4x5 and 5x7 prints, various papers, of a wide variety of subjects. I will select subjects in return upon inquiry of applicants; also wish photo correspondence with each exchange. Class 1.

4264—E. C. Hirsch, Park Falls, Wis.
2⅞x4⅞ and 5x7, of figure studies, animals, miscellaneous subjects; for the same.
Class 1.

CHANGES OF ADDRESS

3721—W. T. Wright, 783 Marshall Ave., St. Paul, Minn.
(Was 594 Carroll Ave.)

4190—Harold A. Smith, Montello, Nev.
(Was Sparks, Nev.)

4193—Capt. W. H. Smith, 33rd Mich. Infty., Camp MacArthur, Waco Texas.
(Was Detroit, Mich.)

4268—Wm. Walter Beech, 1042 So. 58th St., Philadelphia, Pa.
(Was 2001 So. 58th St.)

4293—M. L. Munson, 610 Oakland Bldg., Lansing, Mich.
(Was Nashville, Mich.)

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

Was too busy selling Probus paint and Probus photo colors in the East to send in any notes last mnoth.

Saw George Barrows. He is still in New York, still with the Berlin people and is looking fine.

Willoughby's new store on Thirty-third Street, New York, is certainly very finely arranged.

Bobby Robertson, formerly with Howland & Dewey of Los Angeles, is now credit man for Robey, French Company of Boston.

Saw many old Pacific Coast boys in Rochester. Quinlan, Rodgers, Grayly, Newton and several others. They are a happy lot with the Eastman Kodak Company.

"Doc" Kip, the Burroughs, Wellcome man, who was formerly on the Coast, is now covering Buffalo and Rochester only. He looks well and has trained a parrot to say over the same things that he does.

Brigs of Kansas City has moved into new and handsome quarters that are particularly well arranged.

Louis Eisleben of the Hyatt Supply Company, St. Louis, is a veritable Sherlock Holmes. He caught two young shoplifters while the writer was there.

Miss Sadie Lindsay, Mr. Eisleben's chief assistant, is a model of efficiency and good nature combined.

Michel G. Plumlee of Hirsch & Kaiser's has just returned from a five weeks' vacation at his home in Nashville, Tennessee.

Miss Mary Smart has secured the interest of Carl Conaway, with whom she has been associated in the Hickox studio at Santa Ana, and will conduct it alone.

Miss Bigelow is now in a new ground floor studio at Coronado.

Mrs. M. G. Smith has reopened her studio at Ontario, after having closed it for the summer months.

Frank Aston of San Luis Obispo has purchased the Rolin studio there.

Hiller, the artistic photographer of Pasadena, has made some very fine interiors of the beautiful homes in his city.

George Vreeland has bought the Rembrandt studio in San Diego, and is doing a good business with the soldiers and government employees located there.

Mr. Mehlin of the same city has moved his studio to Fifth and A Streets, where he is very nicely fitted up.

New Building To Be Erected

The Bausch & Lomb Optical Company has found it necessary to enlarge its present plant materially, because of the exceptionally heavy government contracts it is carrying, coupled with a constantly increasing volume of regular business.

The plans call for a strictly fireproof reinforced concrete structure, four hundred feet long, one hundred and twenty feet wide and five stories high, divided by a fire wall into two two-hundred-foot sections. Each section will have an air and light shaft, seventy by thirty-six feet. The construction will be of the latest and most substantial type, stress being laid on rigidity to eliminate vibration, which is to be avoided in the manufacture of such fine-precision instruments as are made by the Bausch & Lomb Company.

Surrounded by wide spaces on all four sides and with the large light and air shafts in the center, the entire building will have a natural light and ventilation second to none. No expense has been spared to obtain these results. A tunnel under St. Paul Street, sixteen feet wide, will connect the new building with the present plant, through which will be carried all piping, wiring, conveyors, etc.

The first floor will be four feet below the street grade and will cover the entire area of four hundred by one hundred and twenty feet. The second floor will cover a similar area and will have a large glass monitor

built for a maximum amount of light and ventilation. The upper three stories will have the air shafts in the center, also built to admit the largest possible amount of air and light. The top floor will be built with a view of using it for office and scientific purposes, thus releasing for manufacturing the present space so occupied. This, however, has not been definitely decided upon. The rest of the building will be used for manufacturing. The lower floor of the two-hundred-foot section toward Lowell Street, will contain a time and gatekeeper's office and engine room; and on this floor there will be a bakery of about fifteen hundred square feet, a kitchen covering about two thousand two hundred square feet, a large storeroom for food products and large individual refrigerating rooms for meat, vegetables, dairy products, freezing and meat cutting rooms.

On the next floor above will be an assembly hall and a restaurant, two hundred feet long and one hundred and twenty feet wide, with a seating capacity of one thousand five hundred. Regular meals will be served at a reasonable cost, and to serve two thousand employees efficiently in forty to forty-five minutes obviously requires a splendid equipment, and this has been carefully studied out.

The entire project has been developed by the owners, with the assistance of their consulting engineer, S. Firestone, of this city. The Turner Construction Company is the general contractor.—*Rochester Democrat and Chronicle.*

Gold Toning of Sepia Prints

Sepia prints by the hypo-alum or ferricyanide-sulphite processes may be toned a fine red chalk, as follows: After washing, immerse for a few minutes in a salt solution, one ounce to the quart of water, then rinse and place in the toning bath until the desired tone is secured, after which the usual fixing and washing must be given. The toning bath is made in two stock solutions, one of fifteen grains of gold chloride in fifteen ounces of water, and the other of ninety grains of ammonium sulpho-cyanide in fifteen ounces of water. These two should be mixed with rapid stirring just before use. Not all papers will respond exactly the same, and the best results are secured from the best sepia prints; these in turn depend upon the good quality of the negative and the correctness of the exposure given the paper in printing. The washing following the sepia toning should not be slighted and it is best not to allow the prints to dry before following with the salt bath and gold toning.

Caltone Users Will Benefit

Much-needed increased facilities for production have enabled the manufacturers of the well known Caltone Developer to announce a material reduction in the price, as the reader will find by consulting their advertisement on another page. This developer has been giving the best of satisfaction wherever used, and it has been used to about the full capacity of the manufacturers to produce it heretofore. Used exactly as metol in any and all formulas calling for the latter, it demonstrates its ability to do all that metol does; in fact, it answers every requirement that can be imposed upon a developer that is put forward as taking its place. The manufacturers offer to send a sample to any of our readers upon request, but a better plan would be to send the required amount and secure an ounce, enough for a good fair trial. You will not regret so doing. Address Caltol Laboratories, 6 Church St., New York.

A Different Catalogue

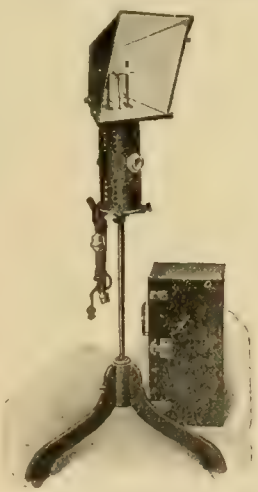
A copy of the new, 1918 catalogue issued by the David Stern Company is just to hand, and it is so different from the usual catalogue that we must mention some of the features, despite the fact that the reader can best satisfy himself by dropping a post card request for one of them. The illustrations, and there is a wealth of them, are all by the offset process, and have much of the quality of actual photographs. The selection of a camera is facilitated by a chapter devoted to a description of the various types, illustrations being given of a typical box, folding pocket, hand-stand, view, focal plane and Reflex camera, with the points of each of the six described. "Choosing a Lens", "Useful Photographic Formulas", and a glossary of photographic terms are other interesting features. The goods and the prices offered are of course given good attention and merit the same from the reader. In sending for your copy, address, David Stern Company, 1112 Davsco Building, Chicago, Illinois.

Some Characteristic Portraits

We all know the individuality and character that is displayed in the work of Elias Goldensky and the two portraits reproduced herewith are quite typical of this master's productions. The most interesting thing, however, is that they were both made with the Northern Light, the advertisement of which appears on the last page of this issue. This advertisement shows not only the interior of the studio in which the two portraits were made, but those of other leading photographers of this country. The latest model of the Northern Light, shown in the cut herewith, has a number of structural improvements. The reflector is so shaped that the front to which the holophane diffuser is attached, is at an angle of forty-five degrees, while the stand is now provided with wooden legs, making it much lighter than the metal ones heretofore supplied without any sacrifice of rigidity. The lamp, which is now finished in the new Crystalex Japan, that gives a more durable surface, as well as a greatly improved appearance, packs, entire, including stand and reflector, into the carrying case shown in the illustration. The complete illustrated Northern Light catalogue will be sent free to any of our readers; or, by sending fifty cents in stamps, one can secure a portfolio of six beautiful portraits, original photographs, 8x10 size, made by well known photographers with the Northern Light. Address, Simplex Photo Products Company, Richmond Hill, Long Island, New York.

PORTRAIT By GOLDENSKY

AN EASY POSE By GOLDENSKY



Just Thirty Of Them

Some seem to think that the developing of a print is simply a matter of mixing up a developer and placing the exposed paper therein for the necessary length of time. Others realize that there are a number of ways of going wrong in the matter, and do not know just how to avoid all the dangers. Both classes would be interested in a list of the possible mistakes and this is offered in a little booklet entitled: "Success, How to Achieve It," sent upon request by the Caltol Laboratories, 6 Church Street, New York. The booklet is neither an elaborate or bulky specimen of the printer's art, but it lists thirty of these sources of trouble, in the form of of queries that have been formulated by the research staff of the Caltone Laboratories, to which is added some good advice by their dark-room experts and their business manager. These suggestions as to the making of good prints are applicable to any developing paper and any developer, although the

price of Caltone Developer is given on the last page. Do not neglect to send for a copy; you will find it both interesting and helpful.

An Announcement of Interest

On another page will be found an advertisement covering the new Movee Motion Picture Cameras and Projectors. While low in price, this line of apparatus has everything in its favor, and should prove a great success, particularly as standard film is used. This last is an important feature, as it not only insures ever available supplies, but it permits of the film produced being used in any ordinary standard apparatus; and, of course, permits of the use of any regular positive film in the projecting apparatus. The inventor is a man of the widest experience in photographic material, its construction and its use; so much so that he has had no difficulty in securing ample capital to insure the manufacturing equipment necessary for economical and efficient production. Such of our readers as are contemplating the purchase of a moderate priced moving picture camera, should investigate the claims of the Movee Cameras and Projectors. We have not as yet had the pleasure of examining one of the new cameras, but expect to do so shortly, and will then report. Write for booklet, addressing, The Movee Company, Cleveland, Ohio.

The Color of the Mount

Why is it that so many of our amateur friends seem to be entirely indifferent to discordant color contrasts between their prints and the mounts they use? They buy an album intended for the black and white effects of developing paper prints, albums having leaves of light and dark cold grays, and joyously proceed to paste in their Solio and other purple and kindred-toned prints. They get hold of some of the old chocolate-colored mounts that are admirable for purple-toned stereoscopic prints, and they mount up their glossy Velox stereos thereon. Are they color blind, or is it because their photographic work is in monochrome and they have ceased to give any attention to color further than to learn of its photographic value in affecting the emulsion on their plates or film? This finding fault is not intended to imply that all mounting should hinge upon a harmony of color; a color contrast may be made effective.

Statement of the ownership, management, circulation, etc., required by the Act of Congress of August 24th, 1912, for October 1st, 1917, of CAMERA CRAFT, published monthly at San Francisco, State of California, County of San Francisco.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Fayette J. Clute, who, having been duly sworn according to law, deposes and says that he is the Editor of the CAMERA CRAFT and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

Publisher, Camera Craft Publishing Company, San Francisco, California; Editor, Fayette J. Clute, San Francisco, California; Managing Editor, Fayette J. Clute, San Francisco, California; Business Manager, Fayette J. Clute, San Francisco, California. That the owners are Camera Craft Publishing Company, San Francisco, California; Harriette E. Clute, Trustee, Hanford, California; Romaine F. Clute and Clifford H. Clute, Beneficiaries, Mountain View, California.

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(Signed) FAYETTE J. CLUTE, Editor.

Sworn to and subscribed before me this twenty-fourth day of September, 1917.

SID J. PALMER, Notary Public,
in and for the City and County of San Francisco, State of California. My commission expires December thirty-first, 1918.

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CAMERA CRAFT

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CAMERA CRAFT

A Photographic Monthly

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THE INTERPRETATION
By GEORGE A. ALSOP
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CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

FAYETTE J. CLUTE, Editor

CLAUS SPRECKELS BLDG. SAN FRANCISCO CALIFORNIA

VOL. XXIV DECEMBER, 1917 No. 12

Photographic Illustrations by Flashlight

By George A. Alsop

With Illustrations by the Author

I have found flashlight of great advantage to my illustration work, because, with it I can make my pictures in such times and in such places as are most favorable for the securing of the desired results. It is much easier to take a picture in a home or office, where one finds suitable furnishings for the setting, ready to hand, than it is to collect together in a studio the materials necessary for each illustration. Besides, an artificial setting is never as effective as a real one.

IN CHILDHOOD'S HAPPY DAYS

(All Rights Reserved)

AN ILLUSTRATION FOR A STORY (All Rights Reserved)

I first think out what I wish to picture for a set of illustrations and then turn my attention to locating suitable settings for them. If suitable ones are not afforded by my own home or office, I seek them in the homes of my friends; or perhaps, in one of their business places, according as the demands of the case require. I make the necessary arrangements to secure the use of a given room or corner, and at the appointed time go there with the necessary models and a flash lamp for the exposures.

Sometimes a picture or a series of pictures must show a richly furnished interior. It is impossible, without incurring prohibitive expense, to assemble the required furnishings in a studio. But I find it comparatively easy to locate and secure the use, for an hour or two, of a room such as is wanted, in a private home. Moving picture companies are adopting this plan of using private homes for their pictures, instead of a studio, as in the past. The advantages of this method are too obvious to need explanation.

Furthermore, the time of day is sometimes important in this kind of work. The expense of models must be kept as low as possible if profits are to be worth while, and I find it easier to secure models for evening appointments than for those during the day. By using flashlight I am able to do the work just as well as in the daytime; and, I need give no heed to the weather. Using the flash, cloudy days or late afternoons are just as good as high noon.

But for many pictures it is desirable and necessary to work in the daytime,

ONE OF A SERIES OF ILLUSTRATIONS (All Rights Reserved)

even when using a lamp, for variety and striking effects in lightings count a great deal. By using the flash lamp in combination with daylight, I am able to secure remarkable effects of this kind. A small amount of daylight can often be used to good advantage to give the high-lights of the picture, provided one has a flash lamp to light up the shadows sufficiently to give the required detail. Or, if one wants a brush of strong light on some part of the face, he can secure this very easily by using daylight in combination with flashlight. But, perhaps the greatest advantage of this combination of lighting is found when making pictures against a window. By using the flash for a back-light, one can get some very beautiful results. Window pictures are always full of interest, and they have been used with great effectiveness by artists of the brush. Without some method of back-lighting, however, the photographic artist has found the production of satisfactory work of this class very difficult, if not impossible.

So much added interest can be given a picture by setting it off with the proper lighting that any equipment that helps one secure variety in lighting effects becomes extremely important. If one is to be successful in this line of work, advantage must be taken of every facility offered. There is another advantage of flashlight that can hardly be overestimated, and that is its ability to render still life objects in the most effective way. It gives a most beautiful and delicate quality to the furniture of the picture, and in this respect is a most ideal illuminant for illustrating work.

The features of the face are also portrayed in the most effective manner. The eyes are brilliant, and the face is rounded and lifelike, with a bold and clear outline. This saves retouching and gives the photograph the good reproducing quality so necessary in this work.

A CHARACTER INTERPRETATION (All Rights Reserved)

The most important of all is its advantage in the matter of speed. To secure the desired expression, it is necessary to make the exposure at the instant when the face expresses the idea one wishes to bring out in the picture. If the exposure is prolonged, it becomes necessary for the model to hold the expression for some seconds, and as is well known, that only a very few models can assume exactly the expression desired, much less hold it, when conscious of being photographed. With the flash lamp I can make them forget the presence of the camera, at least for a moment, by talking or otherwise diverting their attention.

With children, a good degree of speed is absolutely necessary. Daylight exposures, even under skylight conditions, are too slow to permit the securing of the best results, especially if two or more are to be taken together. Using daylight alone in such cases, instead of exposing for expression, I am compelled to give all my attention to the matter of avoiding "moves", while with flashlight I can disregard movement and snap the picture when I see what I want. To get expressive pictures of children, it is almost essential that they be taken while unrestrained as to motion, for it is only at such times that they wear expressions most typical of childhood and appear the least affected. Without the flashlight I would find it useless to attempt the use of children in my illustrations, except where I could take them outdoors.

STATUARY AND WASH DRAWING EFFECTS (All Rights Reserved)

I am sometimes struck by the apparent indifference photographers show toward the capabilities of flashlight in the matter of speed. To me, speed is of the highest importance in picture work, although the demands for this class of

WHO WOULDN'T ENVY HIM? (All Rights Reserved)

work may have made me particularly sensitive in this regard. With the portrait photographer it may not be so important to secure lifelike expressions, though it seems to me that work would increase greatly in interest if more attention were paid to this important factor.

Altogether, I am very much pleased with my flashlamp, and the results it makes possible. The outfit I have is the Halldorson Home Portrait Flash Lamp, one that is most efficient, easy to handle and capable of being set up very quickly. There is no smoke or uncleanliness about it, and I find no need of emptying the

SWEET MEMORIES (All Rights Reserved)

smoke out of the bag, except before folding, preparatory to carrying, no matter how many charges I have fired in it. I can use it, in connection with my camera, on the same bulb, except when I am using it in combination with daylight; then I use two bulbs, making the flash just at the end of the daylight exposure.

If everyone who tried the flashlight in their photographic work would have as favorable an experience with it as I have had, its use would increase by leaps and bounds. And there is no good reason why they should not find it just as valuable an ally as I have discovered it to be. With the proper apparatus and an appreciation of its capabilities, the flashlight should make a strong

appeal to all who wish to improve their work, if indeed, it is not destined to supercede other forms of light altogether. When I see men working with what to me seems a handicap, namely show daylight, I find myself possessed of a feeling varying between pity and disgust. If the quality of flashlight pictures is equal to daylight, and my experience proves that on the average it is even better,—surely the added advantages of speed, certainty, and portableness, makes it the ideal illuminant for indoor photography of all kinds.

Speed Photography

"A Dollar's Worth of Advice"

With Illustrations by the Author

A correspondent sends me a "close-up" photograph of a racing automobile, a print that would serve very well as a horrible example of unsuccessful speed photography. The moving object is represented as a blurred and streaky mass. The camera was pointed at right angles to the direction of the car's motion, and the exposure, my correspondent states, was one-three-hundredth second at f-6.3. I wrote:

"You expected too much of your new outfit. This is not at all unusual in the case of one who has just acquired a fast lens or shutter; I have had very much the same experience myself. Stop and figure it out. The car was doing better than a mile a minute or more than ninety feet a second. Divide ninety feet by three hundred, and you get something more than three inches which the car was bound to move during the one-three-hundredth of a second. You probably know that your shutter is not of the fastest type to be had, yet you have attempted a subject that would tax the fastest shutter the camera catalogues tell us about.

"Whenever you photograph a moving object, it is good practice, if you want to get a good picture, to point the camera more nearly with the line of motion. Show the car, or train, or whatever it may be, approaching. The faster it is moving, the more nearly 'head-on' the picture should be taken. I don't need to give you mathematical proof of the fact that if an object moves diagonally it crosses the field of vision much less quickly than one crossing it at right angles, both objects covering the ground at the same speed.

"Another procedure that will make the blurring as little noticeable as possible, is to get away as far as we can without making the image too small. If an image of a certain size is required, it will avail us nothing to snap the shutter from a greater distance than will give this size image. For when an enlargement is made to the required dimensions, the blur will show up just the same as if originally photographed that size.

"Subjects whose motion is not steady, but is now quick and now slow, may

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1/800 SECOND, FOCAL PLANE

be photographed most advantageously at the instant of slowest motion. A case in point is that of a baseball pitcher when he has his arm drawn back for the throw. Another is a pole vaulter, just as he clears the bar.

"You realize that there must be some blur in the photograph of a moving object. Our aim is to make the exposure so quickly that the photograph will show no perceptible blur. A blur of one-one-hundredth inch on the print is not very noticeable. How short must our exposure be to limit the blur to one-one-hundredth inch in the case, let us say, of the motor car moving ninety feet or more a second; or, as we ascertained, about three inches in one-three-hundredth second? The car is fifteen feet long and we want an image of it three inches long. The mathematical calculation is very simple. We find that an actual movement of the car of three-fourths of an inch is allowable. This means an exposure not longer than one-fifteen-hundreth second. Not many shutters work as quickly as that, only two that I know of, the Multi-Speed and the focal plane, and this is about the extreme limit of their speed.

"You see, no matter how capable a speed outfit you have, you are tackling a pretty serious proposition when you attempt a broadside shot at a mile-a-minute motor car.

"But there is another way out. Point your camera at the car some distance before it reaches the point where you intend to make the exposure, and follow it along, as a gunner would a flying bird, to and past the point where the exposure is made. If you have a good eye and a steady hand, this will give you a fairly sharp picture of the motor car with as long an exposure as one-one-hundredth second. The background will be blurred, of course, but the chances are that would be somewhat out of focus anyhow, and you will get the car! This is a trick very often practiced by focal plane artists.

"I don't want to dampen your speed enthusiasm altogether, but I must say that in my opinion most high speed photographs are freaks, and not of particular interest. You think you want to go in for extreme speed work, and perhaps you do; but the chances are the fever won't last very long. It will be discouraging, to say the least, for you to waste a dozen plates or more to get a picture of a bursting soap bubble, and then have your friends say 'What is it?' when you proudly exhibit the picture(?). I think you had better

borrow or hire a speed outfit for a month or two, if you can, rather than to buy one. For they come high, and probably I needn't tell you that a second hand camera does very well if it brings half its purchase price.

"Difficulties are plenty in speed work, aside from getting the exposure short enough. If you get the exposure quick enough to 'stop' the motion, you are likely to get it so quick that your plate doesn't get enough light. That sounds reasonable, doesn't it? You see yourself that you didn't get anywhere near a full exposure at one-three-hundredth second, even with bright sunlight. What would you get at one-fifteen-hundredth? Use faster plates and faster lens, you say. All right. We can get a lens working at f-4.5, and this will give a little more than double the light action that is secured at f-6.3. We can also get a plate that is twice as fast as the one you have been using. So that with f-4.5 and the fast plate we will get, at one-twelve-hundredth second, as fully exposed a plate as you got with f-6.3 and one-three-hundredth second. But you don't suppose, do you, that the f-4.5 lens is as easy to handle, wide open, as the f-6.3 lens? Try one and see. And you don't suppose either, I hope, that the ultra fast plate is as easy to use as the slower one. Anyway, it isn't.

ADVANTAGE TAKEN OF "REST" PERIOD—Ball is just at height and runner's legs both at point of least motion. Exposure 1/250 second

"Would I advise you to buy a reflecting camera? Well, I can't say unequivocally yes or no. It is perfectly fascinating to operate a reflecting camera, with its 'full-sized image, right side up, to the instant of exposure'; and it is a wonderfully efficient type of camera, without a doubt. You can do some things with a reflecting camera that you can hardly do with any other. But simply for high speed work you probably would secure equally good results by getting a focal plane or Multi-Speed shutter fitted to the camera you have. Hire or borrow a reflecting camera if you can and try it out thoroughly. Then if you still believe you would like one, and can afford it, go ahead and buy. But keep the camera you have. You'll find it more convenient than a reflecting camera on many occasions. With a reflecting camera my experience has been that about nine out of ten subjects are at least as conveniently handled with the common type of camera. It may be that the tenth subject can be got with a reflecting camera, and not

so well any other way. The length of your pocketbook may be an important factor in determining whether that tenth subject and others like it are worth the price.

"See if you can't be satisfied with the f-6.3 lens and shutter you have. You know, after all, it's more 'the man behind' that counts than the particular kind of apparatus. You can do very well with your present outfit by watching your chance and using some discretion, even with rapidly moving objects; although this doesn't mean broadsides of mile-a-minute racing cars. You will find that for the great majority of subjects the apparatus you have is all that could be desired. One-tenth second is a much more useful exposure than one-one-thousandth, and f-6.3 or even f-8 is a much more useful lens aperture than f-4.5. High speed shutters and lenses have their uses, but they are not needed very often in the general run of every-day photography.

"Let me hear from you again.

"Very truly,

(Signed) "CHARLES F. RICE.

"Mamaroneck, N. Y., November 5, 1917."

Arm Chair Photography

By Cobb X. Shinn

With Illustration by the Author

As winter comes on the practice of photography becomes a more strenuous business, at least in the domain of the amateur, out-doors and afield. Some time ago I originated a photographic cartoon which has found favor in several quarters. The Commercial Colortype Company have used several sets for post cards and *The Chicago Herald* uses one on the children's page each Sunday. The thought occurs to me that something of the kind might appeal to a few of my fellow readers as an enjoyable means of continuing their photographic work through the winter, when the weather makes such indoor activity more inviting than during the summer months. One will, no doubt, find it too late for the production of Christmas and New Year's cards, but Easter and other spring holidays offer an excuse for sending out something different to one's friends.

Examples selected at random from two sets of my cartoons are reproduced herewith. At first glance one might think that they were photographs made in some unknown land where the inhabitants had round heads and no ears, but second thought and a closer survey makes it quite clear that these odd people are members of the doll family that was so interesting to us in our childhood days, while the setting sun, the distant hills, the winding road, as the case may be, are disclosed as simple drawings set up, background fashion, just beyond

LOVE IS THE SAME IN EVERY LAND

the narrow strip of fine sand used as a foreground. In fact, these are photographs of what are only miniature settings for a doll play, made much as one would go about it to show some theatrical producer just what a certain scene would look like in a play with the characters, costumes and scenery as designed.

Because I have used dolls in making these photographs is no good reason why another should do the same, although there is no patent on the idea. One

EASTER FLOWERS ARE ALWAYS WELCOME

should try and think up something different, something off the beaten path, as I have done. Studying out something of the kind will help to develop one's originality, and one arrangement will suggest another in endless variation. If you do try something along the same lines, always remember to have everything in proportion to the dolls or characters used.

One might employ some of these quaint figures made out of peanut shells or the like, and another idea might involve the use of figures cut from illustrated magazines and other publications. Even the advertising pages carry many odd characters that would be at once recognized, and perhaps be found more interesting on that account. The lady who so persistenly "Chases dirt" would make a good character, as would also the smiling colored gentleman that Cream of Wheat seems to inspire with much enthusiasm. Other ideas should suggest themselves, and no doubt will, as the work is taken up, and a few experiments made.

One will find the making of such pictures very interesting, and the time that will be consumed in setting up the compositions and getting everything to one's liking will be a surprise to the novice who might imagine it all quite simple.

When it comes to the actual photographing of one of these little scenes there will be another surprise in store, in fact, one may become quite discouraged as a result of his first few efforts. A very even light is necessary; and, while I have not tried it, I should imagine that artificial light, particularly the flashlight, would be well suited. With the latter one could, either by using a magnesium blow-through lamp, and moving it from side to side, or by firing a flash from both sides, secure both a soft and properly distributed lighting.

Working so close to the subject necessitates a fairly small stop and careful focusing that may be a little trying to one who has had experience only with the usual line of subjects. A camera using plates and equipped with a focusing screen becomes almost a necessity. But in this lies a great advantage: one can study and rearrange the compositions, making the exposure only when everything is just as it is wanted. The figures can be moved, the setting changed, the effect of different lightings studied; in fact, there is no reason why one should have any bad compositions or any wrongly timed negatives, once the exposure has been determined, when making pictures of this kind.

The Use of Light and Shade

Light and shade, considered as a means of producing a deception, by making parts of the picture advance and other parts retire, so that everything may keep its relative situation as regards the distance from the spectator, is a necessary attendant upon perspective. It is, however, often violated in the best works, for the purpose of giving a general breadth, or of preserving the light in a good shape; but, when compatible with both these, it is of the utmost consequence; and the painter can enter into a competition with nature only by a perfect knowledge of the best modes of adapting it to such purpose.—JOHN BURNET.

Igniting the Flash

By Cecil V. Ashbaugh

With Illustrations by the Author

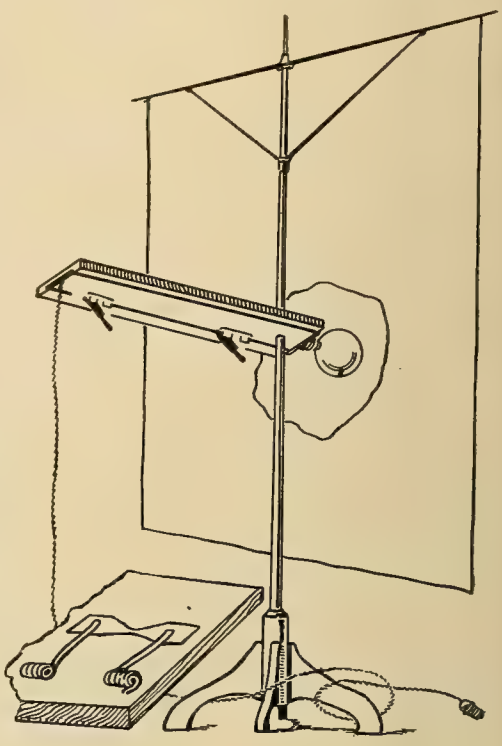
As I have no skylight, and not enough of the class of work that requires one to justify the expense, I resolved to handle the little portrait work that came my way, by artificial light. As the larger portion of my subjects are babies and small children, I decided that anything slower than flash powder would be out of the question. But I had much trouble with flashlight ignitors of various makes, mostly my own (no wonder!). Caps, spark metal, matches and alcohol were tried with indifferent results. Anyone who has carefully grouped a motley throng or placed an individual subject in a specially pleasing pose, shut his eyes ("his" applying to either operator or subject), and then pulled the trigger, string or what-not, without the desired explosion following, can realize the disappointment felt.

INTERESTED—Flashlight—Hammer Non-Halation Ortho, f-6.3.

Then the spark coil and battery were tried out. One was made that would fire every time it was loaded—at home; but taken abroad and placed before a stranger or group of strangers, its heart failed, while its maker became the object of more or less witty jokes of a sarcastic nature. I took the thing to a banquet one night; and, after three attempts to induce it to perform, I had recourse to a match and a piece of "Daily Oregonian". For my trip home I purposely used two blocks of a very muddy side street, discarded the apparatus therein,—and then felt much better.

Since then I have devised a new appliance for igniting the flash, one that uses electricity from the house current, and one that gives uniform satisfaction. This consists, primarily, of a one-inch board, three inches wide and three feet long, arranged horizontally on a standard, with base, that brings it at the right height for the flash. This board is fastened to the standard at one end, the same standard carrying a support for the usual white cloth screen. The

stand I used is from the base of an old revolving post-card vender that happened to be handy, and the support for the 4x6 cloth shield was made from an old umbrella frame by removing all except two of the ribs. These last, when opened, extend from opposite sides and support the screen a safe distance in front of the flash, which is discharged at the other end of the board. The illustration herewith should make it all quite clear.

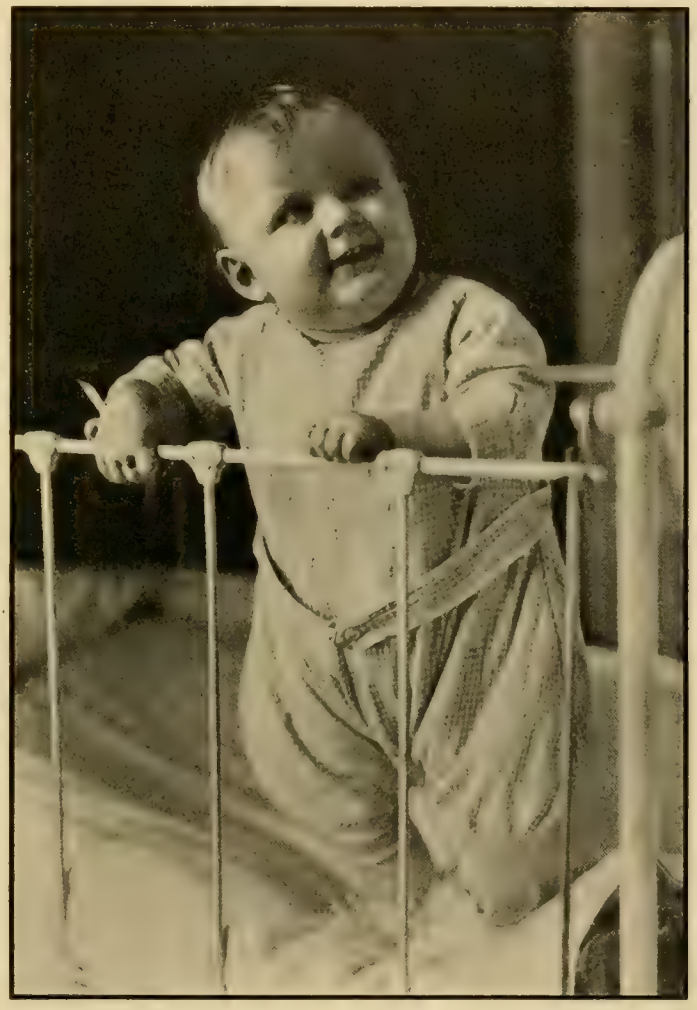


On the end of the board next the subject is fastened a socket which carries a two hundred and fifty watt nitro mazda lamp. Probably a one hundred watt would answer, but as this is used to illuminate the subject for placement and focusing, the larger candle power is preferable. The wires leading to and from this socket are fastened to the under side of the board and are intercepted by two knife switches that may be placed anywhere, but preferably so as to be convenient to operate. The wire from each pole of the nearest switch is run so as to terminate on the upper side where the flash is placed near the free end of the board. The end of these wires should have some spring and be so arranged that their immediate ends, about an inch

EARLY TALENT—Enlargement from 3¼x4¼ negative, made October, 2 P. M., Ansco film, f-6.8, one-fiftieth second

apart, have a slight pressure of contact to the board, as shown in detail in the lower left corner of the sketch herewith.

With a pair of scissors I cut from an ordinary piece of tinfoil, such as is used to cover roll films, strips long enough to connect the two bare wires when slipped beneath their ends, thereby forming an electric connection. These strips must be so cut that only a tiny thread of the foil is left in the center, as the ignition of the flash depends upon the melting of this minute fuse. No coil or rheostat needed.



GOOD MORNING—Ordinary window lighting, Hammer Non-Halation Ortho, f-6.3, one twenty-fifth second, Graflex Camera

To load, I open both switches, place the fuse beneath the two ends of the bare spring wires and pour the required amount of powder on the board, making a trail of it over the narrow place in the foil. If, after loading, I wish to again satisfy myself as to the lighting by the aid of the nitro lamp, I close both switches, taking great car to close the switch from which extend the bare wires before closing the other.

When all is found satisfactory, I again open both switches, the one nearest the flash first; and, when ready to fire the flash I simply close the switch furthest from the flash; in other words, the one nearest the nitro lamp. It will be readily seen that the "juice" in the circuit thus formed will flow through the tinfoil fuse, the switch near it being still open, melting the metal at its narrowest point and exploding the powder. In order that I may stand near the camera, a string is used to pull the switch closed, a better plan would be to have wires extending far enough to reach the camera's side and terminating in a push button switch, but this I have not yet arranged.

Photography In Norway

By Otto Stromberg

With Illustrations by the Author

A TYPICAL SUMMER HOUSE

AWAY up here in Norway the CAMERA CRAFT comes every month as a pleasant greeting from my former home beyond the sea, a constant revival of my love and enthusiasm for the profession; and, it has occurred to me that a few words from me might interest other readers. I do not follow photography as an all-the-year-round occupation. With a loaf of bread costing twenty-five cents or five times more, and a ton of coal fifty dollars, ten times more than before the war, and these are necessities, while pictures are not, it is a wonder that people still demand pictures at all. And again, when one considers that all plates, papers and chemicals, none of which are manufactured in Norway, have risen from one hundred to one thousand per cent in price, the finished product, even of poorer quality, must come much higher, even while the photographer's profit is nominal.

But, as the pleasant summer months draw near, with the fragrance of June and the midnight daylight coming around, I leave the busy shop and move to my pleasant little villa in the capital's suburbs to rest and loiter among my fruit trees and flowers. More for the love of the work than from a desire to profit, I take along my camera and open up the dusty darkroom. And my neighbors watch for the coming of my cases, as they do for the geese to fly north, their appearance being a sure sign that summer has at last arrived. I do not blazon my work from the street corner nor invade the privacy of the homes with schemes for obtaining the people's hard earned coin. I would rather tell the economical housewife that it would be better to buy bread than pictures with her money; but, if she still insists, I take the pictures, first making sure that she fully understands that love for the work is not my only incentive to press the button. "Money makes the mare go."

The Norwegian people are care-free and good-natured, endowed with a love of fun and the open air. At the week's end they come to my place, singly, in pairs, even in dozen lots, to pose for their pictures. There is also the usual crop of babies since my last year's sojourn, and the pretty summer

girl with a new bonnet and a beau who is willing to pay the price, is always in evidence. The Stars and Stripes, displayed at the peak of my tent-roofed summer studio, invites them, and they gather, to pose, inside or outside, as conditions may suggest. While I vary their position with the sun, trying to secure the best possible results, the lighting is very often at fault.

More than two-thirds of my work is really home portraiture. From their small summer houses surrounding my place they send for the photographer when their relatives and friends come visiting. A group picture, post card size only, is wanted. Some of them want a pose by themselves, and then the girl with her chum or beau must have one, so that I often expose five or six plates on such a visit; and, each plate means an order with the full amount paid in advance. As to the posing, I allow them to select their own places, conforming to their wishes as far as I can, explaining why a change is necessary only when they ask the impossible.

I recall a case in point, a request to photograph a family entertaining company in their newly finished villa; a nice, two-storied building, having a large

A TYPICAL FAMILY GROUP—TAKEN IN THE OPEN

IN FRONT OF MY SUMMER STUDIO—10 P. M., ONE SECOND AT F-16

veranda in front. They wanted a picture showing how they lived, to send to some dear relative in America. They wanted, if possible, a group picture taken inside so that the recipients could get an idea of the interior of the parlor, which was indeed quite beautiful. There were eleven in the group, two of them being babies, and the room was about 12x15 feet, with two large windows directly facing the lens. I asked the group to take their positions, and then asked the lady who wanted the picture, how much she could see of the interior, explaining the impossibility of photographing it. The only recourse was a group picture taken outside, and I finally persuaded them to take a 5x7, instead of a post-card size.

They all took their places on the veranda steps, one of the babies and a pet dog occupying a prominent position. I asked them if they wanted the heads large enough to be recognized. Of course they did, or else the picture would be worthless; their heads must show as large as a dime, yet the entire building with part of the surrounding landscape must be included. This I knew would require at least an 18x22 plate, but I said nothing. Asking them to wait a while until a fleecy cloud passed across the sun, I took the couple who owned the place about two hundred feet in front of the building in order to view it from

a distance. Here I spied a rustic looking stone, and asked: "Don't you think the baby would look cute on the top of that stone with the others seated about on some of these craggy rocks?" They were pleased with the idea: "But, can you then get the building in the picture?" "Sure shot I can. Don't you see how nice it looks from this point, what a fine background that bit of woods will make?" "I didn't know", said the woman, "that your camera could shoot so far". Assuring her that my camera could shoot as far as the eye could see, we called the company; and, as a fleecy cloud was then passing over the sun, I set my camera at the proper distance, focused, stopping down to U. S. 64, to bring both the villa and the group fairly sharp, gave one-fifth second exposure and got a splendid negative, from which I secured a large order, and with later additional copies required.

As we can get only bromide post cards here, hard, vigorous negatives are almost a necessity. I find that pyro-soda, with a small pinch of metol added, gives me the best result in developing; one bath serving for two and sometimes three, batches of plates. I have a daylight printer fastened to the wall of my dark-room; and, for the fast bromide emulsion the light is screened down with tissue paper until one-half second is the proper time for each card. With this I can easily turn out a hundred cards in an hour, using a dozen different negatives if the orders are small ones. My work is cheap, I admit; but knowing the size of my patron's pocketbooks and the width to which they have to be opened for so many things these trying times, I am satisfied. I do not attempt "cute" poses, fancy lighting, or fuzzy effects, leaving them to either my amateur friends or the men higher up in the profession. I pretend only to the taking of plain pictures that fill the requirements of the average person of small or medium income. I intended to write concerning conditions in general on this side of the Atlantic, but have drifted into shop-talk instead. But, as I am at the end of my reel, good-bye.

Art—The Artist's Conception

Art is an image of the world reflected in the soul of the artist. Whatever he may choose as his subject, and whatever means he may employ for representing it, the main element of art is and remains—the artist's conception. The poet is an artist of thoughts expressed in words, the sculptor of such well modeled forms as turn marble into life, the painter of colors as they appear to the eye—all of them according to the best of their ability faithfully re-creating the world as they conceive it. This feature of artistic re-creation is the essential element of art, without which a photograph would be superior to the most perfect production that comes from the hand of a master. The mission of art is truth as well as beauty. Art is a power which enables us to express our special sense of the beautiful. The artists's world conception is the foundation of all art. Therefore, it is natural that every age and every nation should have its own original art characterizing its civilization and its culture.—Cornelia B. Sage in *Academy Notes.*

Two Well Known Veterans

By the Editor

The illustration herewith should furnish, although hardly necessary, a fresh illustration of the harmony and good will existing between the former wearers of the blue and of the gray. While our two "veterans" fought on opposite sides in the conflict that raged in our country from 1861 to '65, they are now rejoicing in a happy reunion and in a mutual devotion to the stars and stripes which they trust may forever float, as they do today, over a reunited country that, in every element of true greatness, is unequalled in all the world.

TWO VETERANS By SWARZ, FT. WORTH

Mr. Blessing, the gentleman at the right, has, without a doubt, served the photographers by supplying their requirements in the way of photographic goods for a longer period of time than any man still active in such service in this country. He has been continuously in the photographic stock house business since 1858, in Galveston, Dallas and Fort Worth, with the exception of the four years of the Civil War. He enlisted in the Confederate army, left Galveston August first, 1861, for Virginia, where his company was attached to the First Texas Infantry as Company L, the regiment becoming a part of Hood's Texas Bri-

gade. He took part in twenty-eight battles and numerous skirmishes, was wounded six times, captured, exchanged, and captured again, being a prisoner when Lee surrendered. He returned to Texas in the fall of 1865, again took up the photographic suppply business; and, has for many years been a regular customer of his good friend, but former antagonist, now sitting at his side.

This friend, James H. Smith, is best known today as the originator and manufacturer of Victor Flash Powder, although he has, for many years, manufactured a number of other photographic specialties. Mr. Smith started as a photographer in 1866, just after the Civil War, but in 1871 became a photographic dealer and manufacturer, in which line he is still active; believing that with one or possibly two exceptions, he ranks next to Mr. Blessing in seniority. He enlisted August ninth, 1862, at the age of twenty, in Company D, One Hundred and Twenty-first New York Infantry, attached to the Second Brigade, First Division, Sixth Army Corps, Army of the Potomac. Was in twenty-five battles in which his regiment's losses in killed and mortally wounded, in proportion to enrollment, was exceeded by but four out of the more than two thousand regiments which participated in the war on the Union side. Despite this he received but two very slight wounds and was never captured, although he had one very urgent invitation to surrender. He was never off duty for any cause, and was never sick or in a hospital during his three years of service. Enlisting as a private he was promoted to corporal, sergeant, first sergeant and discharged as second lieutenant at the close of the war.

The Porterfield Exhibition

By W. H. Rabe

One of the finest exhibits of recent photographic art work was held last month at the rooms of the California Camera Club, San Francisco. Fifty prints, the work of W. H. Porterfield, of Buffalo, were on display and attracted much attention from art lovers.

All camera workers know that one of the most difficult things to achieve with the camera is a landscape that is a satisfying picture. Mr. Porterfield has specialized in this class of work, and, in it, has no equal. His subjects, all selected in the vicinity of his home, Buffalo, show poplar trees in all their natural grace, sail boats on Lake Erie, the Royal Gorge, and views of Niagara. Not alone has he chosen pictorial scenes, but he has endowed them all with the spirit of some particular mood or the charm of some special effect.

This artist, in common with many other earnest workers, is at liberty to follow his chosen hobby only on week ends, in summer. His short winter days are spent in the making of prints from his successful summer negatives. These shown are all carbons, printed from enlarged negatives, about 11x14 in size. The tones obtained by the use of this medium assist, in a large measure, in securing the effectiveness of the finished prints.

Mr. Porterfield's work is at all times in great demand for exhibition purposes, and his California admirers are very grateful to him for the generous loan of this excellent collection. To those who have made a study of them, they have been a great assistance and an inspiration.

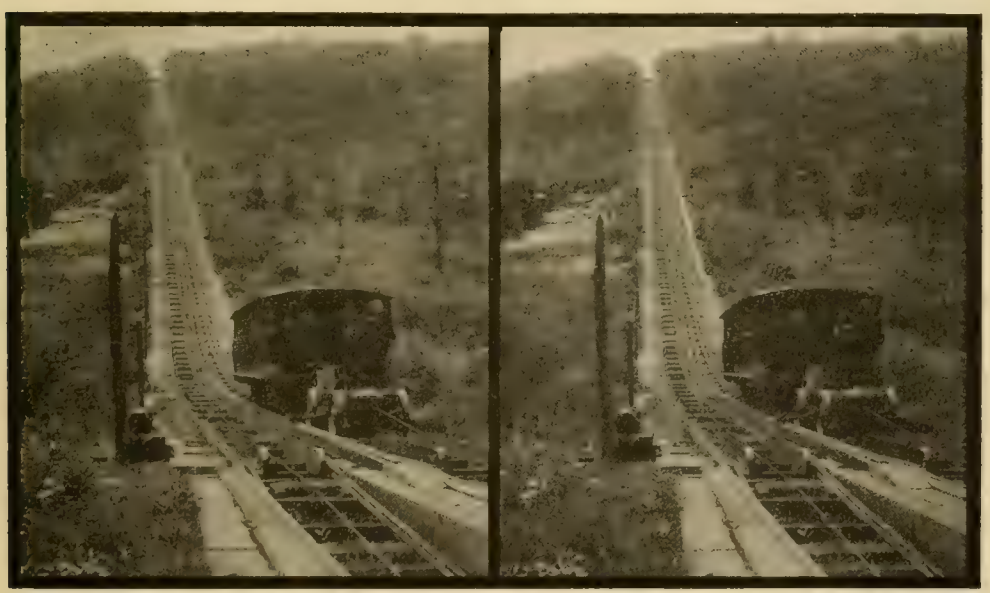
The London Salon, some years ago, made Mr. Porterfield a member of that exclusive society, an honor offered only to a few Americans. He is also the winner of numerous prizes and medals.

Trimming and Mounting Stereograms

By W. C. Marley

With an Illustration by the Author

Each worker seems to be a law unto himself, when it comes to the trimming and mounting of his stereoscopic prints. To me, it appears proper and reasonable to judge a stereo slide as it looks when viewed through the stereoscope, and not when held in the hand. Let us take a series of slides, made according to the various methods of trimming (or lack of method!), and carefully examine them, in turn, through the stereoscope. If, in order to avoid eye strain, one slide has to be placed further away from the lenses than the others, it is because of excessive separation of similar objects in the two elements. Experiments prove that two and three-quarters or seven-eighths inches separation suits all eyes; while three, three and one-eighth, three and one-quarter,



INCLINE AT MAUCH CHUNK — By W. C. MARLEY

etc., are too wide for some eyes and lead to loss of magnification and definition through the necessary "shoving back" of such slides in the scope. Little or no loss of interesting objects is suffered by trimming to a two and seven-eighths separation. The actual subject will occupy the central two inches of each element and not the edges.

Let us direct our attention to the margins of the scene. If, in trimming, there has been left an excess or fringe of subject matter on the two outside edges, which fringe is not included in the opposite element; we will, through the scope, see this fringe with one eye only, giving a disagreeable effect. As one is not always looking at the margins, this defect may be thought a minor one, but the perfect slide should not possess it, especially as there is nothing to be said in favor of the practice. On the other hand, if the two inside margins are permitted a slight amount of similar "fringe" the slides will, strange to say, afford a pleasing effect. Viewed in the stereoscope, the scene will appear as if one were looking through the mount itself, as through a window. Where this inside marginal fringe is not left too wide, an advantage will be gained over the slide whose two elements are trimmed as nearly alike as possible.

After viewing thousands of stereograms, amateur and professional, through the stereoscope, the writer adopted for himself the rule of two and seven-eighths inches separation between nearby identical points in the two elements (which results in distant points being a trifle further apart), and the practice of leaving a small excess fringe on both inside margins. Anybody else can experiment, and make his own rules, and feel quite sure that there are others following exactly the same procedure, so varied are the methods pursued.

PARAGRAPHS PHOTOGRAPHIC

Kindly Contributed by Our Readers

THOSE EXTREME STYLES: The average lady sitter is quite partial to the "style" of the hour and fails to realize the disadvantage of being photographed therein. To explain my dislike for catering to their desires in such cases, I bring forth two pictures of my wife taken some twenty or more years ago. One shows her wearing a pair of generous balloon sleeves, such as were all the "style" at the time, the other presents only a very simple drapery of the shoulders, an arrangement secured with a very few yards of cream-tinted cheesecloth that I was just beginning to use at the time. I have only to show these two pictures and explain that the "style" of today will be just as obsolete as the puffed sleeves in a like period of time, and ask which picture they think my wife would wish to give one of her children, as showing her at the time of her marriage. And there is a selfish motive in all this. Years ago I lost a good customer, who claimed she liked my competitor's pictures of herself better than my own. Looking into the matter I found that she was, without knowing the real reason displeased with my work and pleased with my competitor's, because I had photographed her arrayed in a rather pronounced example of the popular style, while he avoided doing so.—J. K. L., Ohio.

CAMERA CRAFT

A PHOTOGRAPHIC MONTHLY

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A Merry Christmas and A Happy New Year

A Census of Photographers

The War Department is desirous of making a census of photographers in this country, with reference to their individual ability in the different lines of photographic work, and to this end have gotten out a blank form that is to be given as wide a distribution as possible. This blank requires, in addition to the usual name, address, date of birth, etc., information as to one's experience and proficiency in some twenty-seven different lines of photographic work, as well as one's familiarity with foreign languages and one's military, aviation and aviation photography experience, if any. While filling out this particular blank does not constitute an application for enlistment or service in the Photographic Division, it is of the same form as that to accompany application for enlistment in the Photographic Division of the Signal Corps; and, those desiring to enlist can obtain information necessary at any recruiting station. Copies of this census blank can be obtained by applying to the Photographic Division, Office Chief Signal Officer, War Department, Washington, D. C., or they may be secured from our office, where we have a supply on hand for distribution.

The Pictures That We Like

We are all acquainted with the man who tells us that he knows little or nothing about art, but does know what he likes, just as if this last is a perfectly satisfactory substitute for that which he admits he lacks. He intimates, if he does not really say in so many words, that his ability to determine what he "likes" is equivalent to the possession of sufficient knowledge of art to enable him to judge as to whether a picture is good or otherwise, and he is satisfied with himself accordingly. To him, it is not necessary that one know why he likes a certain picture; a picture is a success in the measure that it secures approval, and having his, it is to that extent a masterpiece.

If a masterpiece was really such by reason of its capabilites in pleasing the largest number at the first inspection, the logic of our friend who "likes" a picture would be perfectly sound, but such is far from being the actual situation. Masterpieces, those works of art that have become classics, are not the pictures that come out to meet one as a gallery is visited, not the ones that "tell a story" in an easily understood manner, not the ones that are "liked" by those whose eyes have not been trained and whose appreciation of what constitutes art has not been cultivated.

We have, so frequently and for so long, been told that our pictures must "tell a story", that it seems rank hearsay to question the statement; but, does not a picture lose in value to just that extent to which it tells the story in a

clear and pleasant manner? Repeated, the story becomes irksome, the picture intolerable, and these are not the attributes of a real picture, a masterpiece.

Not long ago, past memories were revived by seeing, in the window of a second-hand furniture store, two dingy little pictures in what were known, in our childhood days, as "Oxford" frames. These were colored lithographs of a very sweet child, entitled respectively, "Good Night" and "Good Morning", and these were, years ago, extremely popular as home decorations, finding great popularity with the public. As the story goes, the original paintings were acclaimed, by popular vote, the best at some important art exhibition; and, knowing the results of one or two similar efforts to discover the popular verdict, we have no reason to doubt its truth. But admitting there is no foundation for the story, the fact remains that this pair of pictures achieved a remarkable sale in their day. They were pictures that attracted, that called for attention, that told a story, but they did not last. A beautiful story will bear repetition a few times, but constant and continued repetition becomes unbearable; a certain melody may charm at the first hearing, but becomes intolerable by being repeated.

The truth of the matter is that we tire of that which we can easily and quickly make our own. We soon weary of the beautiful story, but we continuously find new charm in the sunset that we see from our door; we tire of the pure melody all too soon, but the song of the brook or of the sea is ever new and interesting. And just as a picture approaches being a work of art, it departs from this story-telling, melody-giving standard, and becomes something of which we do not tire, something with an elusive charm, such as the sunset and the brook possess. The real picture, like all great things, is reserved. It does not seek your attention and it will give back to you only that which you give to it. The man who "knows what he likes" will not like it; but, let him hang it on his walls besides his first choice until such time as the latter becomes wearisome, and then his earlier verdict may be set aside in favor of one more nearly just.

Our Workers at the London Salon

While mere figures are uninteresting and accurate data is as yet unavailable, we understand that the United States contributed about one-third of the pictures hung at the last London Salon, and that of this number, one-half was the work of Californians. Of the local workers, the salon critics have been unstinting in their praise of the work of two men who may be considered new in the exhibition field, Arthur F. Kales and Otto C. Schultz. The first showed seven subjects, which in the main represented varied treatment of the nude, "The Bubble", was his most successful subject. Mr. Schultz's "The Valley Beyond Our Hill" is an interesting California landscape which, we are told, won warm praise and, to quote the words of an appreciative visitor, "is the only print in the show which I would really care to own". William H. Rabe, Edward Henry Weston, John Paul Edwards, Sanborn Young and James N. Doolittle, are other Californians who were well represented, each with an average of about six prints to their credit. It will be remembered that Mr. Weston was lately elected to membership in the Salon, and is California's only representative. We commend the act of the Salon in selecting him to membership.

A PHOTOGRAPHIC DIGEST

Edited by H. D'Arcy Power, M. D., Burlingame, California

Diffused and Direct Light

The photographer, whether professional or amateur, requires to make the use of light his chief business or occupation. He uses light not only in conjunction with a lens in making negatives in the camera nor exclusively in the printing from negatives on to sensitive paper. He is concerned with the practical management of light in many other ways than these, and therefore, it is to his advantage that he should have a practical acquaintance with some of the properties of light as they apply to various photographic operations and apparatus. This, it need hardly be said, is a large field of knowledge, and, moreover, one which, unfortunately, is very little considered in the text-books on light which are available. In these notes my object is only to explore a very small portion of this field—in other words, to say something about the difference as regards practical usefulness in photographic work between light which is "direct" and light which is "diffused". Although these terms are in common use I believe that the essential facts which they represent are not recognized by many practical photographic workers. Some discussion, therefore, of the behavior of light in what we may term these two different forms may, perhaps, be of real usefulness in helping photographers to make the best use of apparatus or to adopt methods which are best adapted to a particular end.

As everybody knows, light travels in straight lines. The difference between light which is direct and that which is diffused does not lie in any departure from this law. Nor is it essentially a matter of strength or intensity of illumination. Obviously the diffused light from a clouded sky upon a surface may be more intense than that of direct rays from a lamp. We associate direct light with the casting of a sharp shadow, whilst in diffused illumination no shadow of an object is to be discerned. That is the essential difference between direct and diffused light, and it arises from the fact that rays of light which have been diffused by passing through some medium or by being reflected from some surface progress in every conceivable direction (along straight-line paths) from every point of the transmitting or reflecting surface. In other words, light out of doors which reaches us through clouds or by reflection of direct rays of sunshine from the surfaces of clouds comes as a series of infinitely numerous rays radiating in all directions from each point in the cloud. That is a very different condition from the passage of light direct from the sun which at its immense distance, is a very small source of light. In the one case we have large areas comparatively close to us sending rays in all directions; in the other, we have rays proceeding without obstruction from a source ninety-five millions of miles away. This diffusion takes place whenever light is reflected from a surface which is matt or dull as compared with one which is polished, or whenever light passes through a medium such as ground-glass or fabric which is not perfectly transparent.

In almost any street on a sunny day you can see a very good illustration of the characteristic action of a light-diffusing surface in comparison with one which, by its polished nature, reflects light sharply. The windows of many shops have affixed to them lettering of a more or less matt material. With the window in full sunshine a large volume of light is reflected upon the pavement by the glass, but in the case of the lettering the light is scattered in all directions, with the result that the pavement receives a lesser volume of reflected rays and the letters thus appear upon it darker than the surrounding surface.

One has only got to think for a moment, and it will be clear that it is through the agency of this diffusion or scatter of light in all directions from a matt surface that ob-

jects of any kind are visible to us. Rays of light are reflected from them in such an infinite multitude of directions that some inevitably reach our eyes. On the contrary, if an object is of a highly reflecting surface, i. e., one which does not diffuse light in this way, it is visible to us only when we stand in just that position where the rays reflecting from it meet our eyes. You get a good instance of this very often in the country when suddenly a small window in a church tower will appear as a brilliant patch of light as the result of our stepping into the path of the rays reflected from it. The difference of a few feet either way from this position will cause it to sink again into invisibilty.

From all this we understand that without any departure from the law of a straight path, the effect of reflection from a diffused surface is to spread light in all directions —up, down, and on each side. Naturally, the intensity of the light reflected in any given direction is much less than that which would be produced by reflection from a polished surface. The latter reflects, roughly, the whole of the light falling upon it in one direction, whilst a matt surface spreads the same volume of the original light over a much wider area.

To come now to some of the applications of this common phenomenon in photographic work. One of the most homely is, perhaps, the safe-light in a dark-room lamp. Everybody, perhaps, recognizes, without precisely knowing why, that a dark-room obtains more general and comfortable illumination if the orange or ruby material in a dark-room lamp is not transparent like glass, but is of such a degree of semi-transparency that the shape of the light—electric filament lamp or incandescent gas mantle—cannot be seen through the safe-light. Clearly, if the safe-light is one of ruby or orange fabric or of dyed gelatine films with one or more thicknesses of tissue paper between them, the safe-light becomes a surface which scatters light over a much wider area than is the case if the rays from the source of light pass through a glass screen with no alteration other than that of removal of part of the colored constituents of white light. Another reason, too, of the greater comfort of a semi-transparent safe-light comes into play. It is that the eye is in some measure relieved from the glare of the concentrated source of light, with the result that its sensitiveness is greater, and it is better able to see distinctly in the weak orange or ruby illumination.

The same thing happens when the light in the dark-room is obtained altogether by reflection from a solid surface, although, of course, that is not a good kind of illumination for viewing negatives by looking through them. But for the development of prints and for generally being able to find anything in a dark-room this general diffusion of light is good and very efficiently obtained by fixing up any kind of box a foot or two below the ceiling, arranging the safe-light, either glass or fabric, on the upper horizontal surface, so that the whole of the orange light passes directly upwards, and is reflected and at the same time largely diffused throughout the room from the white ceiling. As an adjunct to the ordinary lamp over the working bench, illumination of this kind is a great comfort in the dark-room, and it is surprising what a considerable degree of light can be employed in this way without any ill-effects in the way of fog upon papers or even plates.

Again, we can see the operation of this same spreading of light in the photography of interiors or in taking portraits or photographs of any objects in ordinary rooms. When the light outside is bright sunshine, or even when it proceeds from a comparatively clouded sky, the part of the room which chiefly receives the illumination is that immediately facing the window. Parts to the right or left are cast in shadow, which almost invariably proves very much deeper in the photograph than it appears to the eye. Experienced photographers of interior subjects know the advantage which results in the way of more equal distribution of the light by closing the space of the window with some diffusing medium, such as thin muslin. The use of such material amounts to the bringing just within the room of a new though weaker source of illumination, the rays from which spread on each side to a markedly greater extent than they do from the unobstructed window. This simple device is often the means of making a marked improvement in general interior views, particularly in cases where a window faces the camera, the muslin remaining in posi-

tion for the greater part of the exposure, and being removed for the lens to be uncapped for a second or two at its termination. And the same improvement applies to indoor portraiture or to the photography of things like furniture, in regard to which a small part of the window may be left uncovered, in order to give such a (small) volume of direct light as may be necessary for the introduction of touches of strong lighting.

In the illumination of negatives for enlarging without a condenser we rely upon diffusion by both reflection and transmission. The illuminating-box sold for use with the Kodak Brownie enlarger is a good specimen of the application of this principle. The light (of a metal-filament lamp) is placed in a closed box of comparatively small size. Rays from it are reflected in a state of diffusion from the sides of the box and from its curved back, and are still further diffused by passing through the semi-transparent screen placed immediately behind the negative. Those who make illuminating boxes for enlarging should not forget the very great diffusing effect which they can obtain by reflection from the sides of the lamp container. While materials like sheet opal produce a very high degree of diffusion, there is no reason to forego the further effect which reflection affords and in so doing utilizes rays of light which otherwise would be lost.

This same advice applies also equally in illuminating a negative for a contact printing box. It is better to have the walls of the box lined with good matt white paper than with mirrors, as I have sometimes seen, and while I am upon this point of printing boxes, I may emphasize one item which has nothing to do with the subject proper of these notes, but which, apparently, is often ignored by those fitting their own electric lamps. It is that the lamp should be placed longways in the box, that is to say, with the length of the filaments parallel with the negative. You thus get a greatly increased illuminating area as compared with that obtained by fixing the lamps, as is often done, with their tips uppermost. That such a piece of advice is not altogether uncalled for, should be evident from the fact that some few years ago a special pattern of metal-filament lamp was introduced, in which the filaments ran as a kind of grid horizontally across the bulb. This was for no other purpose than for obtaining the larger illuminating area which is just as easily secured by placing the lamp sideways.

These instances should be sufficient to emphasize the value of securing diffusion of light, both by reflection and transmission, but in conclusion, the conditions of a portrait studio need be mentioned only in order to remind my readers of the large part played by diffused light reflected from studio walls in the lighting of the sitter. In a studio which is too big this effect is lost, and the only remedy in such cases is to erect, as it were, a studio within a studio. In others of more appropriate size, it is lost from the dark color of the walls. Instead of the light being reflected in very large measure, it is absorbed by the dark wall covering, and I could point to instances where exposures in a studio have been cut down to a surprising extent by getting rid of dark brown or deep green wall-coverings and replacing them by light gray or cream.—MONTAGUE H. POPE in *British Journal of Photography.*

Direct Positives On Bromide Paper

For rapidly copying documents, articles in journals, line drawing, etc., a direct photograph on bromide paper is very satisfactory if the photograph is made through a prism to avoid reversal. A well known example is the use of the Photostat machine, in which the operations of development and fixing are performed automatically after exposure in the camera, the paper being cut off from a roll, so that a great number of photographs can be taken in succession. This method, of course, produces a negative, and for much work a negative has no disadvantages. On most occasions, however, a direct positive is desirable, and such positives can be obtained on the bromide papers used for copying work, by two different processes.

The first method is the well-known one whereby the developed, but unfixed, print, is bleached out in an acid permanganate bath, and the residual image of silver bromide exposed to light. This, on development, gives a positive black-and-white image. Good results are obtained by observing the following instructions:

The exposure must be sufficient so that development is complete in about two minutes, using the developer recommended for

the particular paper used. After washing the print for five minutes it must be bleached by bathing for one minute in the following bleach bath:

Potassium permanganate .... 30 grains
Sulphuric acid, strong.....150 minims
Water .....32 ounces

Rinse and immerse in a dilute solution of sodium bisulphite to remove the brown stain, working in full daylight, and rinse and develop in the developer first used; then fix and wash in the usual way.

Any slight stain that remains in the print can be removed by bathing in a weak solution of potassium cyanide, being careful to take the print out the moment the stain disappears, or the silver image itself may be attacked.

A second method, worked out in the research laboratory of the Eastman Kodak Company, calls for developing in the usual manner, converting the unexposed silver bromide into silver sulphide and then removing the residual silver image, leaving a positive image of silver sulphide.

The exposure may be made in an ordinary plateholder, keeping the paper flat with a sheet of clear glass, and must be adjusted so that development is complete in two to three minutes in the following developer at seventy degrees Fahrenheit:

Elon	8 grains
Hydroquinone	150 grains
Sodium sulphite....3 ounces	100 grains
Sodium carbonate..3 ounces	100 grains
Potass. bromide....	50 grains
Water	32 ounces

It is evident, in view of the fact that this developed silver image is subsequently removed, leaving a clear white background, that all the exposed silver bromide must be reduced to silver during development, or the highlights of the final positive will be stained or fogged. On the other hand, if the print is over-exposed in the first place, spreading may take place and fine lines will be lost.

After development a rinse only is needed before the print is put into the darkening bath, where it remains for two minutes at seventy degrees, when the unexposed silver bromide is converted into sulphide. The bath is made up of:

Sodium sulphite, crystals .....1 ounce	330 grains
Water	32 ounces

It will be safer to bring this solution to the boiling-point and allow to cool before using, in order to precipitate the iron present. The final color of the print, as well as the degree of contrast, will depend on the strength of this bath, which may be used almost indefinitely. A weaker solution will give yellowish-green tones, but if the above strength of the solution is maintained, almost black lines are obtained. Rubber fingertips should be worn, as the solution may affect the finger nails.

The print, after a few seconds washing, should be placed in the following bleach bath until the high lights are perfectly clear, which will occur in about three or four minutes:

Potassium ferricyanide .....11 ounces
Ammonium sulphocyanide.....11 ounces
Water to.....32 ounces

The temperature of the bleaching bath is important. It may run from sixty-five to seventy-five degrees, but it should not go beyond this, or the silver image may be attacked and the bath is liable to decompose. The bath ripens with age, and works best when it has turned a greenish color. Ammonium sulphocyanide may be replaced by the potassium salt without changing the action.

In view of the fact that ammonium sulphocyanide dissolves silver bromide, the print is automatically fixed during bleaching. After bleaching, the print should be well washed for five or ten minutes and dried as usual.

The finished print will have a slightly yellowish cast in the high lights, which can only be removed by continued use of the ferricyanide bath, which is not desirable. Local yellow stains are due to the presence of silver bromide along with the silver image previous to sulphiding. It is important, therefore, to prevent this by correct exposure and full development. At all stages of the process the print must be agitated to prevent stains caused by uneven action of the baths.

In actual practice the process takes very much less time than is taken to describe it. Not more than twenty minutes are needed to carry it through, including the developing, sulphiding, bleaching and washing.—*British Journal of Photography.*

Mirror Images

It is sometimes desired to make a portrait

in which both the direct picture of the sitter and the reflection in a mirror are shown. The results are often disappointing, because the operator has not realized the "depth" of his subject, consequently either one image or the other is out of focus. It should be remembered that an image reflected from a mirror always appears to be as far behind the surface of the mirror as the actual object is in front of it, so that, in the case of the sitter being one foot in front of the mirror, the distance to be sharply rendered is two feet. This can only be done by reducing the aperture of the lens—in doing which it is a great aid to obtaining the necessary sharpness if the actual surface of the mirror be focused, and then the needed depth be obtained by stopping down. A final touch of the focusing rack is necessary to balance the sharpness of the two images, the result appearing more natural if the mirror-image is the less sharp. While on the subject of mirror-images it may be news to many to know that ordinary silvered plate may be strained into a sufficiently cylindrical curve to cause a round face to look appreciably longer, or a long face to look rounder. This distortion may be applied with good effect upon "dumpy" figures.—*British Journal of Photography.*

The Ideal View Angle

In a recent article on commercial photographs in these pages, it was stated that the eye sees naturally whatever is included in an angle of sixty degrees, and then, as a sequel, we are informed that, "therefore", the most natural effect will be secured when the distance of the view point is twice the greatest length of the object. These two statements, however, cannot be squared together, for the second one involves an angle of only twenty-eight degrees instead of sixty. In point of fact, the smaller of these angles is about the maximum angle that can be covered with comfort. It will be represented when we use an eight-inch lens on a quarter-plate, and there is fairly general agreement that the ideal angle is less than this, being best realized by using a ten-inch lens on a quarter-plate. An angle of sixty degrees is, of course, far too great; it will be given by a three-and-one-half-inch lens on a quarter-plate, and will correspond to what we call a wide angle. As a rule we use about a five-inch lens on a quarter-plate camera, and with this the angle covered is about forty-four degrees, which is generally recognized as being somewhat too wide. It is curious that this matter of the best view angle should so often be misunderstood, but the size is generally exaggerated, even by those who actually use a small angle.

It may be assumed that the view angle which can be covered with the greatest ease and comfort by the eyes is the one that can be included by the two eyes together, without any movement of the head. We can move our eyes quite unconsciously, and without any sensation, but if a head movement is made, that motion is at once noticed, and for a moment it distracts the attention, and detracts from our enjoyment of any picture under observation. Seeing that the eyes, separately, can each cover a fairly wide angle, it is very commonly assumed that the two together can cover as big, or, possibly, even a bigger one, but, as a matter of fact, the two together can, at the most, only cover about half the angle that either eye can include by itself. This is due to the fact that with each eye the angle is limited on the nasal side by the projection of the nose, though there is no similar obstruction on the outer or temporal side. The angle covered by the two eyes simultaneously is then of necessity limited on both sides by the nose, and is comparatively small. Even this angle is not covered with perfect ease or without a sensation of strain, and experiment shows that the actual angle covered without any perceptible sensation or strain is not much over twenty degrees, while thirty degrees may be regarded as the permissible maximum. A ten-inch lens on a quarter-plate gives this angle very nearly, and thus a direct print from a negative produced under such conditions will generally be quite satisfactory as regards angle. It will also be so in respect to perspective, as ten inches is both the correct and the most convenient viewing-distance for the print.

We can get exactly the same final result from a quarter-plate produced with a five-inch lens, if we take a portion of the negative measuring not more than 1½x2, and enlarge two diameters. In the great majority of cases it will be found that hand-camera negatives stand this treatment well,

but if less drastic trimming is desirable, we can utilize a space equal to about 2x2¾, without getting an angle over thirty degrees.

An important point to notice is that a spectator taking up his position for viewing a picture generally selects one from which the picture covers only a convenient angle. That is to say, he will take up a viewpoint from which the picture covers an angle of from twenty to thirty degrees. But in no case will he approach nearer than nine or ten inches, however small the picture may be, because at any nearer distance he cannot see distinctly. A view made with a five-inch lens is thus seen from about twice the proper distance, with the result that "wide angle effects" become manifest. If enlarged twice it can be seen from the right distance, but then the angle is too wide for convenience, though no distorted "wide angle effects" are visible. The tendency then is to draw back enough to make the angle smaller, say about thirty degrees, but this does not involve a doubling of the viewing distance, it is only increased by about sixty per cent, so that wide-angle distortions are much less prominent than when we are at twice the right distance. If the print is trimmed down the observer will take a nearer standpoint because the angle is smaller, and thus he will approach more nearly to the correct point. The matter of view angle is thus always mixed with that of perspective, and, as a general rule, it is safest to avoid angles over thirty degrees, and whenever possible get them nearer to twenty degrees. If we exceed thirty degrees trouble is likely to ensue, for at the correct viewing distance for good perspective the angle is uncomfortable, while at a distance giving a comfortable angle we may be worried by apparent defects of perspective. Taking these limits of from twenty to thirty degrees as desirable ones to observe, the following table shows what lenses will be suitable for use with plates of various sizes. The first column gives plate sizes and the second the focal length of lenses, giving view angles of thirty to twenty degrees:

2½x3½	6	to 9
3¼x4¼	7½	to 11
4 x5	9	to 14
4¾x6½	11	to 18
5 x7	12	to 19
6½x8½	15	to 23
8 x10	18	to 27
10 x12	24	to 36
12 x15	28	to 42
4.5 x 6	4	to 6
9 x12	8½	to 13
12 x16	11	to 17
13 x18	13	to 19
13 x21	15	to 23
18 x24	17	to 26
24 x30	21	to 32
30 x40	28	to 43

The shorter focal length, of course, gives the wider angle. In calculating these results the angle considered is the one subtending the longest way of the plate, an allowance being made for the amount cut off by the rebates of the dark slides. In other words, it is assumed that the plate in all cases is used horizontally, or, as it is called, landscape fashion.

If for any reason it is wished to use the plate the other way up, or vertically, then the smallest width of the plate is the one governing the view angle. In most cases the table will still give the necessary information, for the shortest width of one plate is generally the longest width of another, or nearly so. Thus, if we use a half-plate, vertically, the width, four and three-fourths is sufficiently near to five inches to permit us to take the data for a 4x5 plate. Or, again, a 10x12 used vertically is the same width as an 8x10 used horizontally, so that with either plate an eighteen-inch lens will give an angle of thirty.

The vertical view angle is not a matter of any consequence, and can be ignored always.

The figures given are very approximately correct, but, naturally, with the larger plates an inch or so either way will make a quite negligible difference in the view angle. The table is only intended to show the limits within which it is most desirable to select the focal length.—*British Journal of Photography.*

Illinois College of Photography

Ralph Harford of East Lansing, Michigan, class of 1914, and Miss Ethel McKinnon of Effingham, a very estimable young lady, were married October eighteenth. Mr. Harford conducts a studio at East Lansing, where they will reside. Our warmest congratulations.

THE AMATEUR AND HIS TROUBLES

Conducted by Fayette J. Clute

Monomet Developer

An Alabama subscriber asks us what we know about this new developer. It is not exactly new, having been on the British market for nearly three years. It has given good satisfaction over there, and we have heard it well spoken of by users in this country. It is a dark gray powder, somewhat different from the small white crystals that characterize metol, but the manufacturers explain that this is due to a slight residual of the original dye products that would entail an unnecessary additional cost to remove. It should be dissolved in warm water, otherwise a precipitate may be formed, giving a muddy mixture, having a purplish or greenish tinge. The Ansco Company recommends this developer very highly, advising that it can be used according to the directions for metol in their "Cyko Manual" and "Professional Pointer," except in making modifications for soft results, a different procedure must be followed, as increasing the Monomet causes precipitation and results in flat and lifeless prints. They advise the following formula for soft results, using Monomet only:

Water	40 ounces
Monomet	40 grains
Sodium sulphite, dessicated	180 grains
Sodium carbonate, dessicated	240 grains

Bromide, five to forty drops of a saturated solution, according to the warmth of the tone desired.

The "Flashlight Stare"

An Illinois subscriber sends me a couple of flashlight portraits, and asks how he can prevent the dilated appearance of the eyes; if he should use a faster burning powder, or a quick shutter on his lens. The truth of the matter is that the flashlight does not cause the trouble of which he complains. It is all due to having the room too dark before the flash is made. The eyes of the sitter accommodate themselves to the weak light and the flash records their appearance as they do so. A good strong light in the room, one strong enough to keep the eyes in almost a normal condition, will not be difficult to take care of, because it would require quite a few seconds in which to permit of an image on the plate, even were the shutter left open for a longer period than the duration of the flash. If such were not the case there would be no need of resorting to the flash. The source of the light, be it globe, bulb or, flame, should, of course, be far enough away to be out of the field of the lens.

Making Formulas Available

How often one wishes to locate a certain formula that he remembers having seen in some magazine or has copied off on a piece of paper and then misplaced, but does not know just where to look for it. One of my friends has a simple little system that entirely obviates all this disappointment. When he finds a formula or hint that he thinks he may need at some future time he copies it off on an ordinary card-index card and files it away in a box. To the formula he always adds the source from which it was taken and indicates whether or not further details are given. The first card carrying, for example, an intensifier formula, is given a title tab and all other cards dealing with that subject are simply filed back of this; other subjects being treated in the same way. Sometimes, but not often, two cards are required, but the general plan is to copy off no more than the one card will hold and depend upon looking up the original source should the particular process come up for trial at some future date.

To Find the Infinity Point

An Illinois correspondent has a table giving him information about the depth of field

with different stops, but he wants to know how he can determine the nearest point that can be called infinite focus, with his lens of five and one-half inches focus. This infinity point varies with the stop employed. The proper way to determine it is to square the focus of the lens, add two ciphers, multiply the result by the f value of the stop; and, the final result being in inches, divide by twelve to get the distance in feet. Five and one-half multiplied by five and one-half gives thirty and one-fourth; adding two ciphers or multiplying by one hundred gives three thousand and twenty-five; which, divided by five and four-tenths, the stop being f-5.4, gives five hundred and sixty inches, or a little over forty-six and one-half feet. At f-16 the infinite focus would be a little less than sixteen feet, as one can determine by following out the above formula or one can determine the infinite point for each stop by a simple problem in equation, once it has been determined for one of the series.

Calculating Proportions of Solutions

In a recent number of *The British Journal of Photography* was given the rule to be followed in diluting stock solutions to some lower percentage value. As was pointed out at the time, all that requires to be done, in order to express the percentage as ounces per pint, is to divide by five. Thus, a twenty-five per cent solution would contain five ounces to the pint, and conversely when ounces per pint are multiplied by five the percentage strength is obtained. When, however, it comes to the question of diluting a stock solution of known percentage strength to one of a lower value, says Edgar Senior in a later issue, difficulties very frequently arise through want of knowledge of the very simple rule for ascertaining the proportions in which the stock solution and water require to be mixed in order to obtain a solution of the desired strength. In the example given, a twenty-five per cent or five ounces to the pint solution of hypo was required to be diluted to one of fifteen per cent, or three ounces to the pint. How much of the stock solution of hypo must be taken, and what quantity of water must be added to it? Problems of this nature are most readily solved by means of a rule known as alligation, which determines by a process of linking the quantities or values of the various ingredients in a mixture. In order to apply this rule the quantities or values are arranged in pairs on the right-hand side of a bracket, one being of less and the other of greater value than that required. The latter are placed on the left-hand side of the bracket, when the difference between one member of a pair and the required value will be the quantity required of the other member. In the question under consideration the required value is fifteen per cent. This is therefore placed on the left-hand side of the bracket, and twenty-five, "the percentage value of the stock solution," on the right-hand side of bracket, a cypher taking the place of the second member. The statement will, therefore, appear as follows:

$$15 \left\{ \begin{matrix} 25 \\ 0 \end{matrix} \right] \begin{matrix} 15-\ 0=15 \\ 25-15=10 \end{matrix}$$

From this we see that, in order to dilute a twenty-five per cent solution of hypo to one of fifteen per cent strength, fifteen parts of the stock solution must be taken and ten parts of water added to it, or the number of parts of the stock required to be taken is that which corresponds to the smaller of the two percentages, water then being added in sufficient quantity to bring the number of parts up to that which corresponds to the higher percentage.

A further example which serves to illustrate the usefulness of the above rule is taken from one of the examination papers in photography of the City and Guilds of London Institute. The question was as follows: Having a solution of amidol containing seven grains to the ounce, and another containing one and a half grains to the ounce, in what proportions would you mix them in order to obtain a solution containing three grains to the ounce? From what has already been stated the quantities would be arranged as follows:

$$3 \left\{ \begin{matrix} 7 \\ 1\frac{1}{2} \end{matrix} \right] \begin{matrix} 3-1\frac{1}{2}=1\frac{1}{2} \\ 7-3\ =4 \end{matrix}$$

Therefore one and a half parts of the solution, containing seven grains to the ounce, and four parts of that containing one and a half grains to the ounce, must be taken in order for the resulting mixture to contain three grains per ounce of solution. The above rule, therefore, forms the simplest means of dealing with problems concerning the quantities of ingredients in mixtures, as it is equally applicable in all cases of the kind.

CLUB NEWS AND NOTES

Club Secretaries and others will oblige by sending us reports for this Department

Portland Camera Club

The Portland Camera Club has, in its assembly rooms at the Portland Society of Art, an exhibition of twenty-nine pictorial photographs by Dwight A. Davis, of Worcester, Massachusetts. Mr. Davis is known for his fine portrayal of sunlight, and in these platinum and gum prints that are so worthy of study, he shows his ability to handle light and shade with great delicacy. The pictures are mostly figure studies, pleasing of sentiment and showing great versatiliy in selection. Some depict poetic, some romantic conceptions, while others are simple home scenes rendered in a manner full of sentiment and charm. Some fine heads and interesting still life pictures are included and all are technically excellent, yet full of charm and atmosphere. The club has arranged as a part of its schedule, for frequent one-man exhibitions by some of the best photo pictorialists in the country. During the past year there have been exhibitions from such men as Dr. Rusicks, W. H. Porterfield, Karl Struss and others, and this season's schedule contains the names of A. D. Chaffee of New York and Edward Henry Weston of California, the latter a member of both the Pittsburgh and London Salons.

Chicago Camera Club

The Chicago Camera Club has outlined some very interesting monthly programs for the coming year, the bulletin for October announcing a Ladies' Night with lecture on "Camera Days Down East", by Mrs. W. A. Rowley; a discussion of prints and slides submitted by members; a Life Class evening devoted to figure work study, and, a business and social meeting, at which Mr. Scheffler of the Art Academy will discuss and criticize the work of the life class. These events will take place the evenings of the tenth, seventeenth, twenty-fourth and thirty-first; and on these evenings there will also be exhibitions of prints by Messrs. Anderson, Rich, Bryant and Sorber in turn. The new officers elected recently are: President, Paul Wierum; Vice-President, G. C. Abbott; Secretary, G. L. Anderson, and Treasurer, W. J. Becker.

The Camera Pictorialists

The First International Photographic Salon under the auspices of The Camera Pictorialists of Los Angeles, will be held in the Gallery of Fine and Applied Arts, Museum of History, Science and Art, Exposition Park, Los Angeles, January first to thirty-first, 1918. The aim of the salon is to exhibit only that class of work in pictorial photography in which there is a distinct evidence of personal artistic feeling and sentiment. Entry blanks, together with rules and conditions, may be secured by addressing David J. Sheahan, Secretary, 31 Walker Auditorium, Los Angeles, California.

Kansas City Camera Club

All of the members have been urged to enter pictures for the annual club exhibition to be held November nineteenth to twenty-second, these to be framed or unframed, as the makers may elect, but must not be smaller than 4¼x6½, and must bear on the back the maker's name, title of picture, and printing medium used. The regular meeting night of the club has been changed to Tuesdays, the next, that of Tuesday evening, November thirteenth, being devoted to an illustrated lecture on Animal and Bird Photography by Dr. A. H. Cordier, the intrepid hunter and naturalist.

Illinois College of Photography

A larger per cent of women have enrolled at the college this fall than in the history of the institution. Photography surely offers a great opportunity for women at this particular time, and more of them should avail themselves thereof.

INTERNATIONAL PHOTOGRAPHIC ASSOCIATION

A Lantern Slide Exchange

To stimulate interest in lantern slide making and to afford such workers an opportunity of seeing the productions of others interested in this fascinating branch of the photographic art, there has been organized a Lantern Slide Exchange, under the auspices of the International Photographic Association. A. E. Davies, of 695 Sixty-first Street, Oakland, California, has been appointed director, and he will have charge of the Western Division. Arthur H. Farrow, 51 Richelieu Terrace, Newark, New Jersey, will act as secretary and have charge of the Eastern Division. As an initial effort, two sets of slides will be made up; one in the West by Mr. Davies, and the other in the East by Mr. Farrow. The co-operation of readers of CAMERA CRAFT is desired, and those who are interested in lantern slide work should lose no time in getting in touch with one or the other of these two gentlemen.

The following plan has been arranged: A set will consist of fifty slides, to which each member will be asked to contribute five slides. Thus there will be ten members to each set. As soon as a set is complete, it will be routed to each member in rotation. The slides can be retained seven days before forwarding to the next member. After the Eastern set has been the round of its members, it will be sent to California, and will go the round of the Western members. The same plan will be carried out with the Western set. By contributing five slides each member will have the privilege of seeing at least two sets of slides. A number of good workers have already signified their intention of joining, and if members of the I. P. A. who make lantern slides will lend their aid, this Exchange should prove a mutual help and an inspiration to better work.

Officers of the I. P. A.

F. B. Hinman, President, 1369 South Washington St., Denver, Colo.

J. H. Winchell, Chief Album Director, R. F. D. No. 2, Painesville, Ohio.

Fayette J. Clute, General Secretary, 413-415 Call Building, San Francisco, Cal.

Charles M. Smythe, Director Post Card Division, 1160 Detroit St., Denver, Colo.

James B. Warner, Director, Stereoscopic Division, 413-415 Call Building, San Francisco.

A. E. Davies, Director Lantern Slide Division, 695 61st St., Oakland, California.

Arthur H. Farrow, Secretary Lantern Slide Division, 51 Richelieu Terrace, Newark, N. J.

NEW MEMBERS

4411—Earl F. Sweet, R. F. D. No. 1, Goble, Or. Class 3.

4412—Henry J. Rust, Box 683, Coeur d'Alene, Idaho.
5x7, various papers, of natural history; for ornithology and botany. Class 1.

4413—Wilfred Hickman, R. F. D. No. 1, Fairmount, Ill.
2½x4¼, developing papers, of wood scenes mostly, cloud studies, snow scenes, and various others; for anything of interest, beach views and mountain scenery preferred. Class 1.

4414—Oscar C. Kuehn, 3405 Caroline St., St. Louis, Mo.
3¼x5½, 4x6 and 6½x8½, developing papers, of views of Missouri Botanical Garden, flower studies, landscapes, park views, etc. Also pin-hole work; any of the above subjects. Good work only sent or received. Post cards only unless otherwise agreed. Class 1.

4415—Dr. E. S. Moser, Naperville, Ill.
2¼x3¼, developing papers; I am a tyro and very enthusiastic about gaining some information in photography. Class 1.

4416—R. C. Posey, 1351 Forist Ave., Gadsden, Ala.
3¼x5½, 4¼x6½ and 5x7, developing papers, of photos and views; for the same. Post cards and views. Class 1.

4417—Hugh W. Allen, Box 14, San Angelo, Texas.
Views and home portraits; for the same. Class 1.

4418—W. S. Wilgus, Box 2379, Bisbee, Ariz. Class 3.

4419—C. Lilie, Persia, Iowa.
2¼x3¼, developing papers, of landscapes, bathers, genre, etc.; for landscapes, marines, figure studies, and genre. Good work sent and expected. Class 1.

4420—Walter H. Ritsher, 718 Church St., Beloit, Wis. Class 3.

4421—Mrs. H. J. Reynolds, 2013 Prairie Ave., Chicago, Ill. Class 3.

4422—O. S. Shaw, Lenora, Okla.
2½x4¼, 3¼x5½, 5x7 and others, various papers, of miscellaneous views of Oklahoma; for miscellaneous views of other places. Class 1.

4423—S. R. Flanagan, 535 Preston St., Clarksburg, W. Va.
3¼x5½, 5x7 and 8x10, various papers, of portraits, views, landscapes, etc.; for portraits, views, etc. Class 1.

4424—G. C. Carlisle, Box 338, Fowler, Cal.
5x7 cm. and 8x10 cm., various papers, of various genre, buildings, California local and curious views; for anything of general interest. Class 1.

NOTES AND COMMENT

A Department Devoted to the Interests of Our Advertisers and Friends
In it will be found much that is new and of interest

Reported by William Wolff

C. B. Stone of Dallas, Oregon, has located in Palo Alto, having bought the Franklin studio, which will be known hereafter as the Stone Art Shop.

Chester Stevenson of Ashland, Oregon, has a fine assistant in Miss Queritta Brown, a young lady who knows the photographic business from A to Z.

Helen J. Rienhart has taken the position of secretary to V. R. Trine, manager photo department, Woodard Clark Company, Portland, Oregon.

N. E. Bond of Klamath Falls, Oregon, moved into his uptown studio the middle of November.

Archie Henline of Klamath has added a Velie car to his outfit,—and it is some boat.

The Hansen Photo Supply Company of Palo Alto has opened a branch at San Jose.

Mrs. John O. Tucker of the Tucker studio, San Jose, is already deep in the holiday business.

Enlist Your Lens In The Army

People of the United States are asked to help the Signal Corps of the Army get lenses enough for cameras for the fleet of observation airplanes now being built. The need is immediate and of great importance; the airplanes are the eyes of the army and camera lenses are the pupils of those eyes.

German lenses can no longer be bought in the open market. England met this difficulty, in the earlier stages of the war, by requiring lens owners to register lenses and requisitioning those needed. England is now making lenses better than the German ones formerly imported, but no faster than needed for her own uses. The Bureau of Standards of the United States Department of Commerce is now perfecting a substitute for the German "crown barium" glass used for lenses and will later be able to meet the needs, and special lenses are being designed for this work.

The situation now, however, is that, with airplanes soon to be ready for service, suitable lenses cannot be bought. Hundreds are needed at once. Possessors of the required types are urged to enlist their lenses in the Army. They are asked to immediately notify the Photographic Division of the Signal Corps, U. S. A., Mills Building Annex, Washington, D. C., of lenses of the following descriptions which they are willing to sell, stating price asked: Tessar anastigmat lenses made by Carl Zeiss, Jena, of a working aperture of f-3.5 or f-4.5, from eight and one-quarter to twenty-inch focal length; Bausch & Lomb Zeiss Tessar lenses, f-4.5, from eight and one-quarter to twenty-inch focal length; and Voigtlander Heliar anastigmat lenses, f-4.5, from eight and one-quarter to twenty-four-inch focal length. Practically all of the lenses of these types in America will be required, but the eight and one-quarter inch lenses are most urgently needed. Twelve-inch condensers are also wanted.

LT. EDWARD J. STEICHEN.

The Scheibe Filters

Every photographer realizes how easy it is to make a mistake in judging whether a certain scene or view will photograph in such a way as to be pleasing when rendered in the black and white of the finished print. A strong color contrast may come out flat and uninteresting, the subject may be lost in a background from which it stands out well in nature. The motion picture cameraman cannot take chances of this kind, because too much time and expense is involved. He must know; and, to do so he uses one of Scheibe's Monotone Filters, at least, those working in that busy hive of movie activities, Los Angeles and surroundings, do so. Mr. Scheibe has been urged to make his filter available to the general photographer, whose need is as great, if not as important, and to that end his advertisement on another page.

This little device shows one just how the tones and colors of the scene will be rendered in the finished print, and does this before the plate or film is wasted, to say nothing of the work of developing and printing. It also, to a great extent, acts as an exposure meter, because it enables one to see the value of the light, photographically, as well as the value of the different colors, and just as expeditiously. Fits the vest pocket and costs only one dollar. Address Geo. H. Scheibe, 1263 North Normandie Avenue, Los Angeles, California.

An Opportunity For The Ladies

The several good photographic schools in this country are having calls from all directions for help which they cannot supply. While the war is taking large numbers from the ranks of the male workers, the business of the photographers is increasing, with the result that photography at this time offers an excellent opportunity for members of the gentler sex who have a knowledge of the work. When it is realized that a course in a photographic school does not cost a fortune, and does not involve the time required to master any of the other professions, the inviting aspect of the opportunity presented is quite evident. A letter from "Daddy" Lively, of the well known Southern School of Photography, at McMinnville, Tennessee, advises that the school is making a special appeal to the ladies, that it is prepared to take care of them within the school building proper, and that the advantages a course in photography now offers is unquestionably better than that any other profession offers today. Since the outbreak of the war, the students in attendance who wished positions rather than business locations of their own, have been engaged even before their terms ended, the lady pupils faring equally as well with the men. Those interested should get in touch with this school by writing it for particulars concerning its activities.

Mr. Wallace With The Central

R. James Wallace, who was for a number of years head of the Department of Photographic Physics at the University of Chicago, a fellow of many learned societies, both in this country and abroad, has identified himself with the Central Dry Plate Company of St. Louis, his principal duties being along the line of research work, with a view of making improvements, wherever possible, in the quality of the firm's goods. Mr. Wallace will also have charge of all technical correspondence, and as he has had most extensive practical experience in almost every branch of photographic work, those addressing inquiries of this character to the Central Dry Plate Company will be given authoritative, as well as careful and courteous attention. The Central people are rapidly fitting up their new factory, and as soon as it is in active operation they expect to put a number of new brands and specialties on the market; and these, having the benefit of Mr. Wallace's technical knowledge, will, no doubt, add greatly to the popularity of this firm's goods.

Some Good Advertising

C. J. Hibbard, the well known commercial photographer of 412 Nicollet Avenue, Minneapolis, has gotten out and distributed, since October eighth, over fifty thousand little folders, each one bearing the words "Compliments of", followed by his name, business and address. As these are of such a nature that they will be kept and shown to others, one can appreciate the valuable advertising which Mr. Hibbard has secured through this wide distribution. The folder is entitled "The Devil Has Resigned", and the printed matter consists of the satire on Kaiser Wilhelm, written by Louis Syberkrop, of Creston, Iowa, originally published in the *St. Paul Dispatch* and copied in a large number of newspapers throughout the country. Mr. Hibbard charged nothing for the first eighteen thousand of these that he had printed, but requests for copies from all over the country involved such an expenditure for postage that he, while still distributing them free in his home city, is now compelled to make a charge of fifteen cents per hundred, postpaid, for them. The idea is a good one; and, as the matter is not copyrighted there is no good reason why other photographers in different parts of the country might not take it up with advantage to themselves.

Motion Picture Studio Lighting

Bulletin No. 77, issued by the Cooper Hewitt Electric Company, Eighth and Grand Streets, Hoboken, New Jersey, treats very fully on motion picture studios and the ad-

vantages of Cooper Hewitt Electric Lamps as the ideal light. Fourteen years of cumulative use is the record of one large producing company that installed nearly a thousand of the lamps in their modern plant. One of the illustrations shows a two hundred and thirty-six lamp equipment in a large California studio, and numerous other photographic reproductions add interest to the booklet; one, showing motor driven camera being used for title and cartoon work, being noteworthy. If interested in motion picture work, send for a copy of this bulletin before the matter slips your mind.

Serchol Developer

Those who are looking for an excellent developer to replace metol, should not fail to give this new, British-made developer, Serchol, a trial, as it is being found most satisfactory by a large number of local workers who have used it for some time. It, the manufacturers claim, is even better than metol, because of having a greater chemical purity, and it certainly is more amenable to the control exercised by bromide. It is used exactly the same as metol in all formulas, but care should be taken that not more than one and one-half grains be used to the ounce of working solution. At its price of one dollar and fifty cents per ounce or twenty-two dollars and fifty cents per pound, it is a most economical developer, for the reason that in addition to its great strength it has excellent keeping qualities. It can be obtained locally of Hirsch & Kaiser, 218 Post Street, this city, and if one wishes to give it a trial before purchasing a large quantity there is a fifty cent quarter-ounce package available.

Just Thirty Of Them

The chap who thinks the developing of a print is simply a matter of mixing up a developer and putting the exposed print therein, ought to know better. The one that knows there are a number of ways of going wrong would like to have them all catalogued; or, a good part of them at least. "Success, How to Achieve It," is a neat little booklet that lists thirty of them in the form of queries that have been formulated by the research staff of the Caltol Laboratories, to which is added some advice from the firm's dark-room experts and its business manager. It is not an elaborate or bulky specimen of the printer's art, but it is full of meat in the form of good suggestions as to the successful making of good prints on any paper, with any developer, although the price of Caltol Developer is given on the last page. Do not neglect to send for a copy of "Success", it is sent free, addressing: Caltol Laboratories, 6 Church Street, New York.

The "Movee" Camera

A booklet describing this remarkable little camera reached our desk just too late for mention in our last issue. As a camera it takes standard film and can be loaded in daylight; as a projector it is fitted with two reels accommodating five hundred feet of film, while a full thousand feet reel can be used when desired, this enabling one to show any of the educational or other films that can be rented from the regular exhanges. The camera will, of course, also serve admirably as an enlarging apparatus for any of the film exposures, and single exposures can be projected upon the screen in the same manner as lantern slides from ordinary camera negatives. The "Movee" camera is no larger than an ordinary hand camera; and, being designed to carry fifty feet of film, or eight hundred exposures, it is just the thing for numberless occasions when the ordinary complicated and bulky moving picture camera would be out of the question. A reproduction of a section of film made with this excellent little camera is shown herewith. Write The Movee Company, Cleveland, Ohio, and ask for a copy of their interesting booklet.

Mission Photo Supply Company Changes Name

Mr. de Roos, formerly manager of the Mission Photo Supply Company, is now the sole proprietor of that concern, and the firm will hereafter be conducted in the name of Henry G. de Roos, instead of as heretofore. There will be no changes in the personnel or policy other than an increased effort towards the highest efficiency in all departments.. The rapid growth of this concern is noteworthy. Starting about three years ago in a small store on Sixteenth Street in the Mission District, the business soon outgrew these premises and was, about a year ago, moved to its present location, 88 Third Street. This firm has, in addition to its regular photographic supply business, what is no doubt the largest camera and lens exchange business on the Pacific Coast, and there has recently been added an up-to-the-minute finishing laboratory, as well as a fully equipped shop, where all classes of repair work, lens fitting and camera building will be handled in the most workmanlike manner.

A New Photo Washer

The Tacoma Tribune of November fourth, in mentioning the device advertised by Scott's studio, on another page, says:

"A combination automatic photographic print and plate washer has been invented by O. P. Scott, one of the best known photographers in the Northwest, who has won several medals presented by the National Photographic Association of America, and one at the Chicago World's Fair.

"With the new invention it is unnecessary to touch the prints or plates after they have left the hypo bath, thereby avoiding rheumatism caused by handling prints in cold water. Chemical tests have proven, Mr. Scott says, that the prints or plates placed in the combination washer are free from hypo after having been washed for thirty minutes. The washer will care for prints from 2x3 to the largest size portrait without creasing or breaking them. The prints are removed in a perfectly drained condition.

"The new device, Mr. Scott says, can be made very cheaply, and will save considerable money if placed in operation in studios."

The Capabilities Of Flashlight

Our leading article this month should be of the greatest interest to those who, being somewhat in doubt as to the capabilities of the flashlight, have denied themselves possession of an efficient piece of apparatus for the work. In the wide range of effects secured by Mr. Alsop there is certainly a strong endorsement of all the claims that he makes for the effectiveness of this form of lighting. The Halldorson Flash Lamps which he uses have been advertised for over two years; and, like any other utility that can be profitably advertised for other than a few months, it has given uniform satisfaction. We have yet to hear of a dissatisfied purchaser of a reliable flashlight apparatus and our readers are urged to get in touch with the manufacturers, to the end that not only may their present work be made more satisfactory to both their customers and themselves, but their field of operation may be enlarged. Mr. Alsop is doing work that is in demand, and accordingly profitable, and he is securing results that could not be obtained in any other way. With the excellent flashlight apparatus upon the market today, there is no excuse for anyone to deny themselves the wider scope that the use of this form of illumination gives.

Illinois College of Photography

A break-back, hinge-back has been installed on the new Ansco copying camera used at the College.

Lee Lenon, class of 1905, owns and operates a very successful engraving plant at Little Rock, Arkansas. We are pleased to hear of his success.

The many friends of Albert Adkinson, a former student and later an instructor in the College, will regret to learn of his sudden death at Jacksonville, Florida. Mr. Adkinson leaves a widow.

The Air-Brush Department has just been presented with a Wold Air-Brush, Type "U", which is a wonder. This department is very popular with the students, who have bought of the college some one hundred and ninety brushes during the past three years, besides the large number purchased elsewhere.

Harold Vant, class of 1916, has accepted a position in the Thayer studio at Noblesville, Indiana. Miss Thayer, who has been in attendance at the College, returned to her home last week. We are sure that Mr. Vant is happy because he is (Thayer) there. We are not expecting an invitation to what seems so imminent.